# ENERGETSKA ELEKTRONIKA

## Studijski programi:
## NET, ELITE, ASUV

**Visoka škola elektrotehnike i računarstva**

**Neša Rašić, Mijat Štimac, Nenad Tolić**

**e-mail: nesar@viser.edu.rs**

# ENERGETSKA ELEKTRONIKA

## Status predmeta:
## IZBORNI

**Broj ESPB poena: 6**

**Nedeljni fond časova:**
**tri časa predavanja i dva časa LAB vežbe**

# ENERGETSKA ELEKTRONIKA

## Uslovi za polaganje ispita

**<u>Laboratorijske vežbe (20 bodova)</u>**

**Obavezno prisustvo. Predati i odbranjeni izveštaji.**

**<u>Kolokvijumi (po 40 bodova)</u>**

**Prvi (krajem novembra), drugi (na kraju semestra)**

**<u>Završni ispit (maksimalno 80 bodova)</u>**

**Deo gradiva koji nije savladan putem kolokvijuma ili kompletno gradivo**

**OCENE: 6 (51≤BB ≤60), 7 (61≤BB ≤70), 8 (71≤BB ≤80), 9 (81≤BB ≤90), 10 (91≤BB ≤100)**

# ENERGETSKA ELEKTRONIKA

## Polaganje ispita - kolokvijum

**Kolokvijum se polaže pismeno u školi u terminu predviđenom za predavanja. Kolovijum traje 60 min.**

# ENERGETSKA ELEKTRONIKA

## Polaganje ispita – završni ispit

**Ispit se polaže pismeno u školi u terminu predviđenim kalendarom ispitnog roka.**

**Zadaci u ispitnom roku biće podeljeni na dve celine.**

**Student ima pravo da polaže jednu ili drugu celinu, ili celokupno gradivo.**

**Kada student jednom položi određenu celinu (kolokvijum ili deo u ispitnom roku) taj deo gradiva student nadalje ne mora da polaže.**

**Student je položio ispit kada savlada sva tri segmenta!!!**

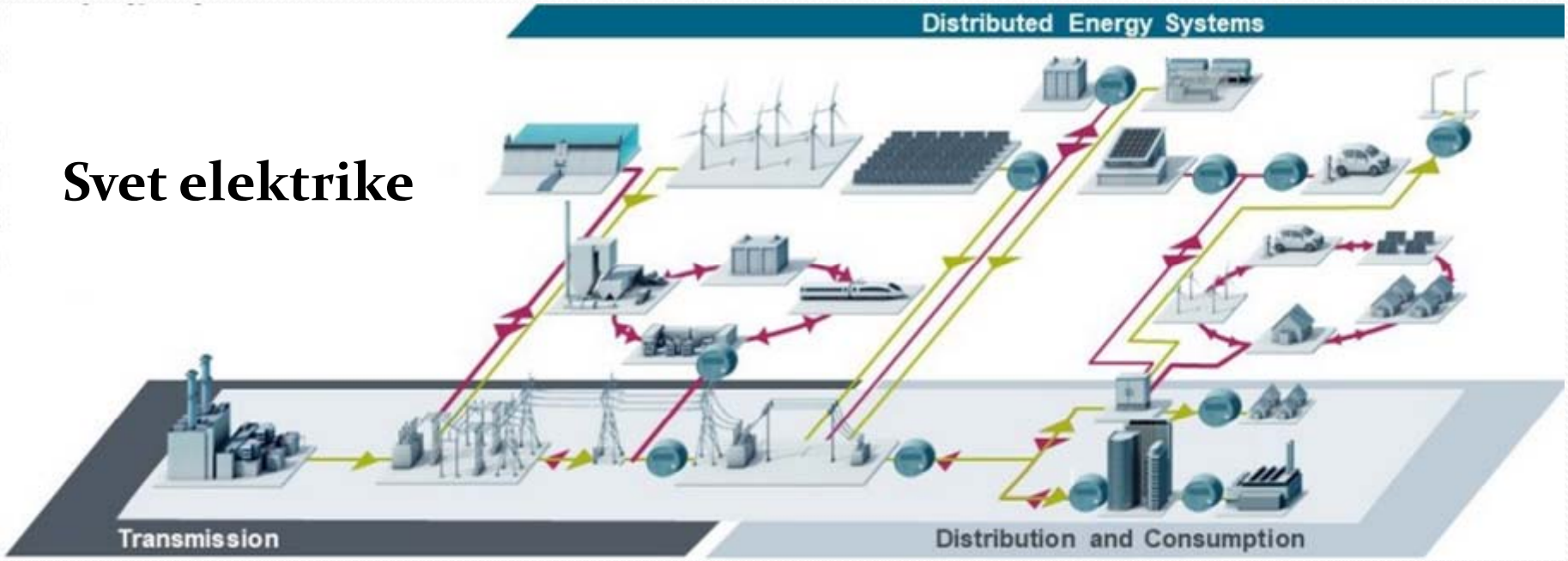
# ENERGETSKA ELEKTRONIKA

- Energetska elektronika je bliže energetici jer joj je cilj visoko efikasno pretvaranje električne snage, sa što manjim gubicima.

- Spada u elektroniku, jer osnovni princip pretvaranja nije elektromagnetska indukcija (kao kod električnih mašina) već fizički fenomeni u poluprovodnicima (ili vakuumu, gasovima).

# ZAŠTO Ee?

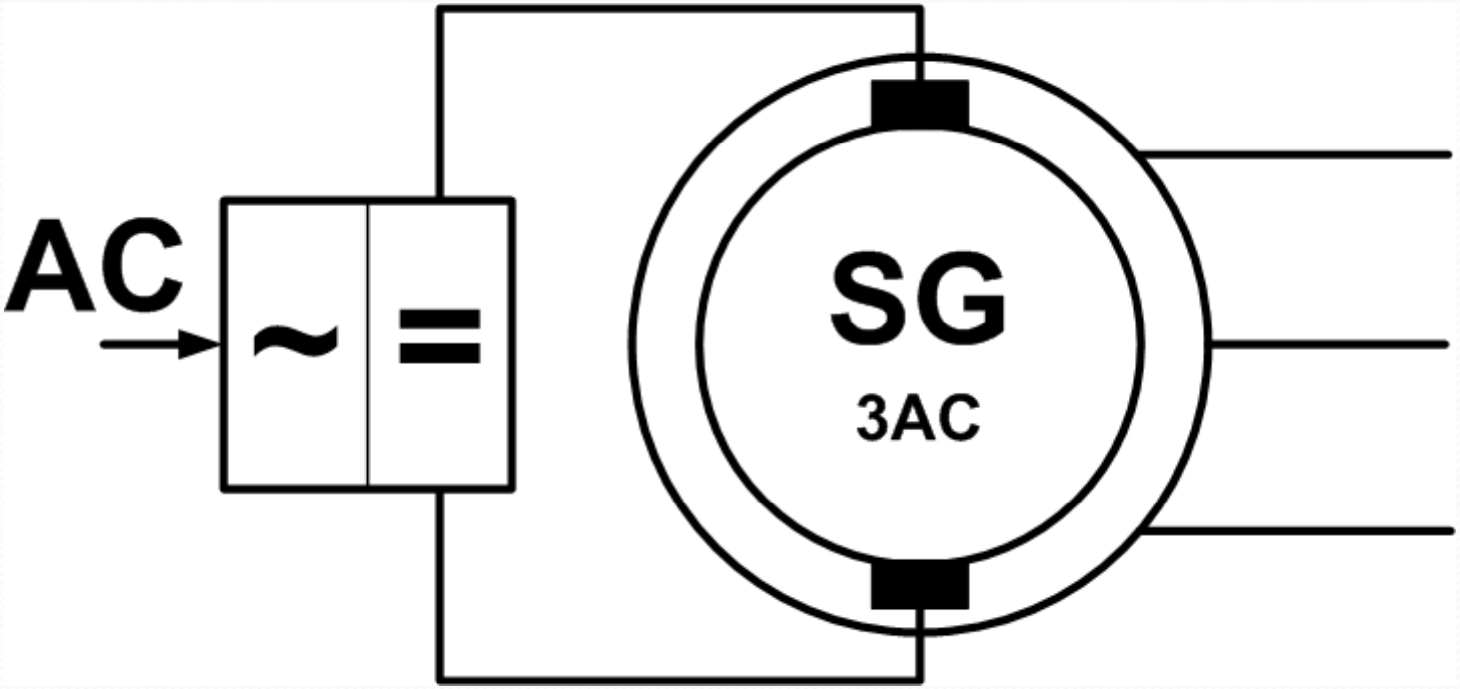
**Svet elektrike**




Primena energetske elektronike u:

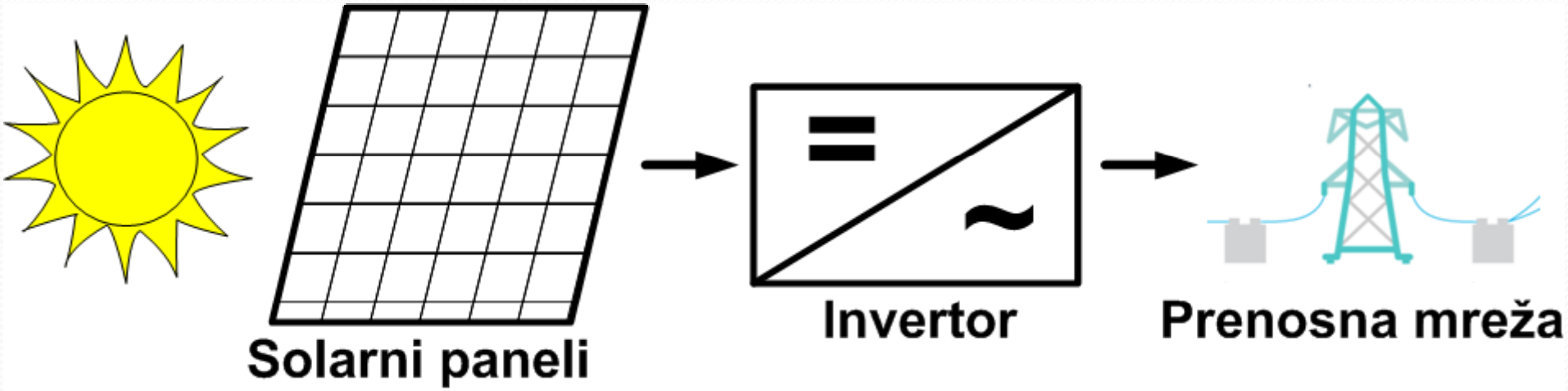
- Proizvodnji
- Prenosu
- Potrošnji

# Ee u proizvodnji



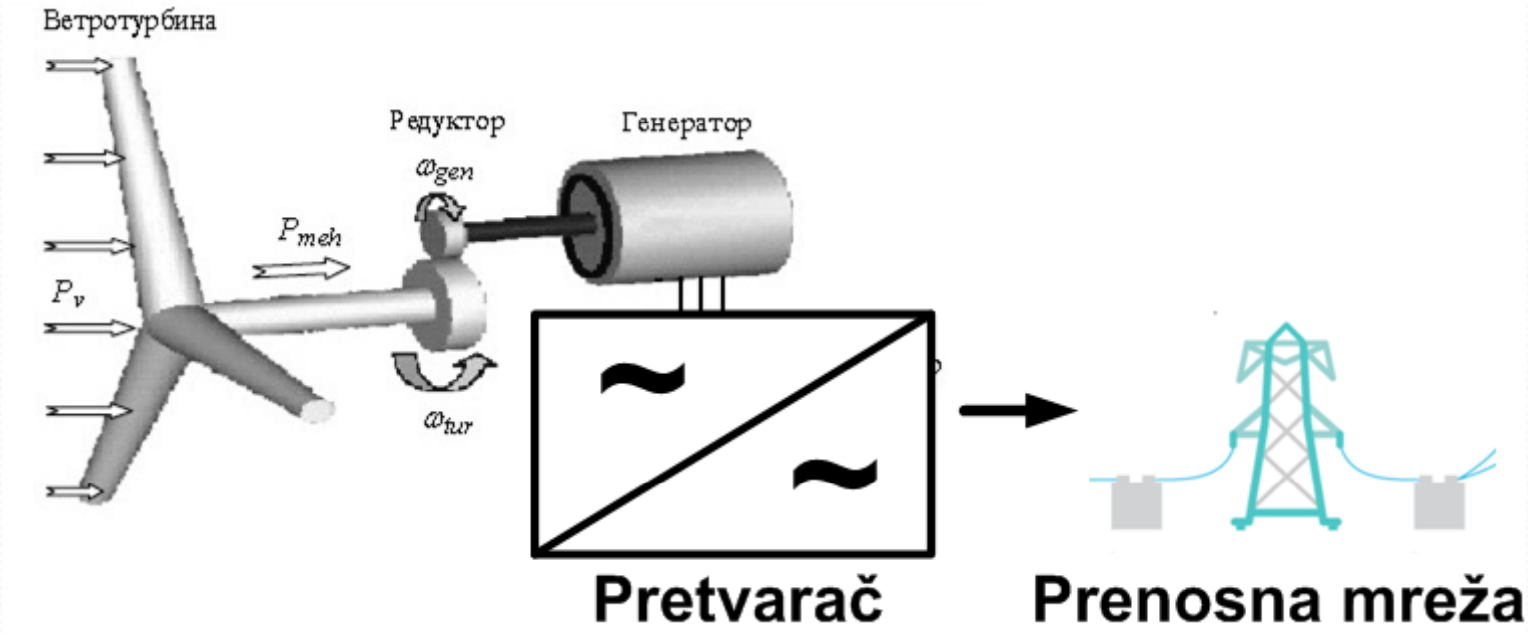

Primena statičkih ispravljača za generisanje magnetnog fluksa u svim tipovima sinhronih generatora
(hidro, termo i nuklearne elektrane)

# Ee u proizvodnji




Primena energetske elektronike u proizvodnji “zelene” energije

# Ee u proizvodnji




Primena energetske elektronike u proizvodnji “zelene” energije

# Ee u prenosu energije na daljinu


Primena energetske elektronike u prenosu električne energije na daljinu primenom jednosmerne struje

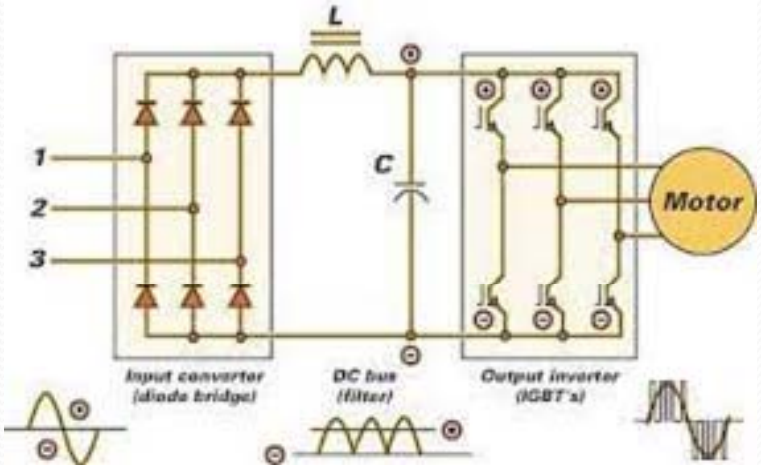
# Ee u potrošnji

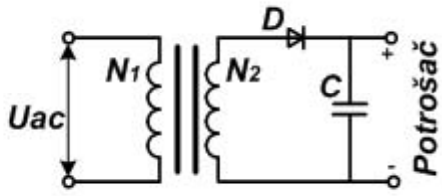
- <u>Široka potrošnja (domaćinstva)</u>

Pretvarači (ispravljači, invertori) za napajanje najrazličitijih potrošača u domaćinstvu

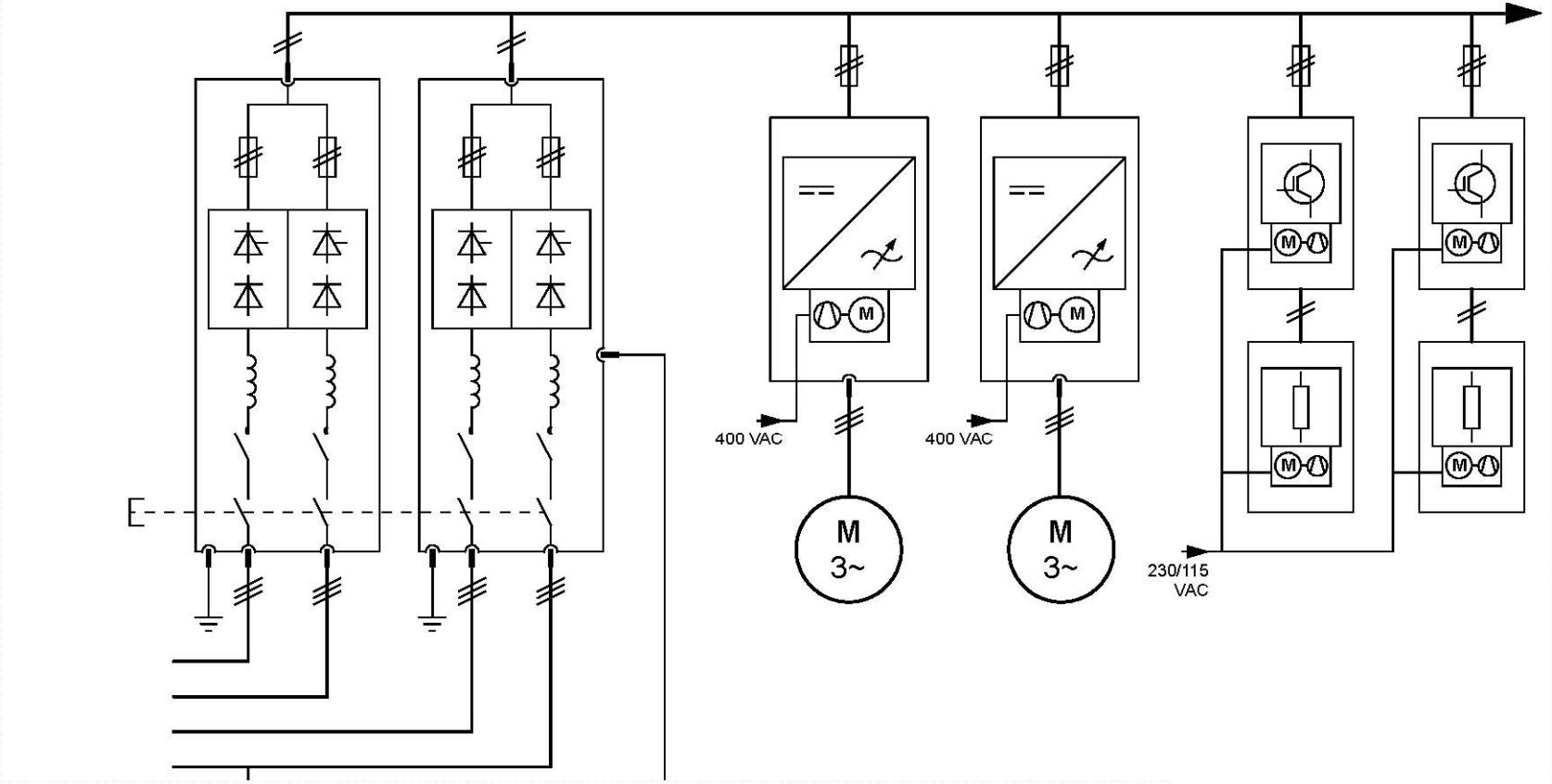
-<u>Industrija</u>

Pretvarači (ispravljači, invertori, pretvarači učestanosti) za napajanje elektromotornih pogona, ispravljačkih stanica, lučnih peći i dr.

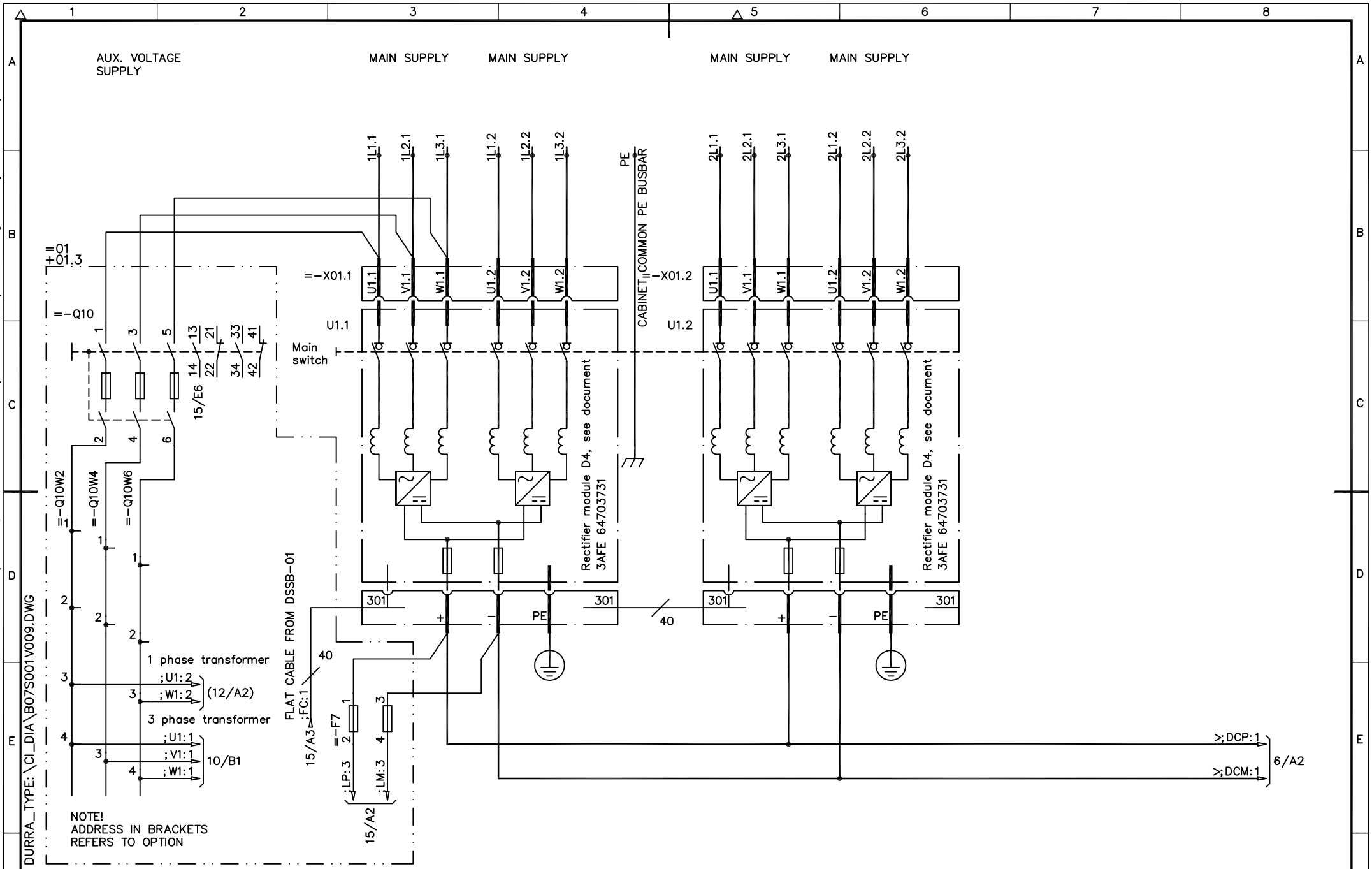


# Ee u potrošnji



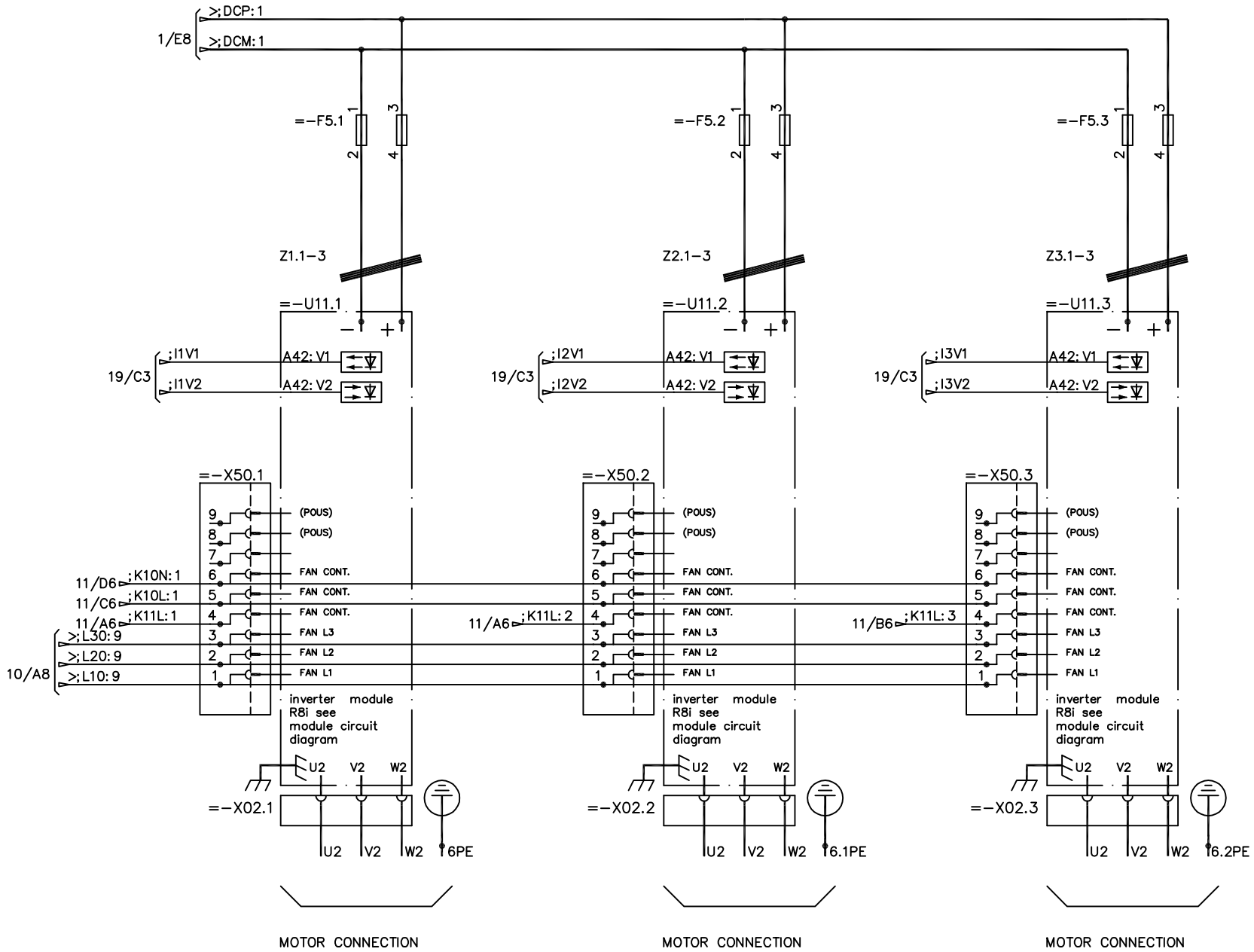

Konfiguracija savremenog tzv. “multidrive” pretvarača sa zajedničkim jednosmernim međukolom






| | | | |
|---|---|---|---|
| Cust. Doc. No. | Prepared 26.09.2002 Sergelius | Title Supply Main Circuit ACS800-07 2xD4 | Product Circ.Diagram EFS2 |
| Customer | Approved 16.06.2003 M. Talja | | Item des. =01 +01.1 |
| | Project | | Resp.dept. Rev.ind. C Lang. en |
| ABB Ref. No. | | ABB Drives | Doc. No. 3AFE 64705261 Sheet 1 Cont. 6 |

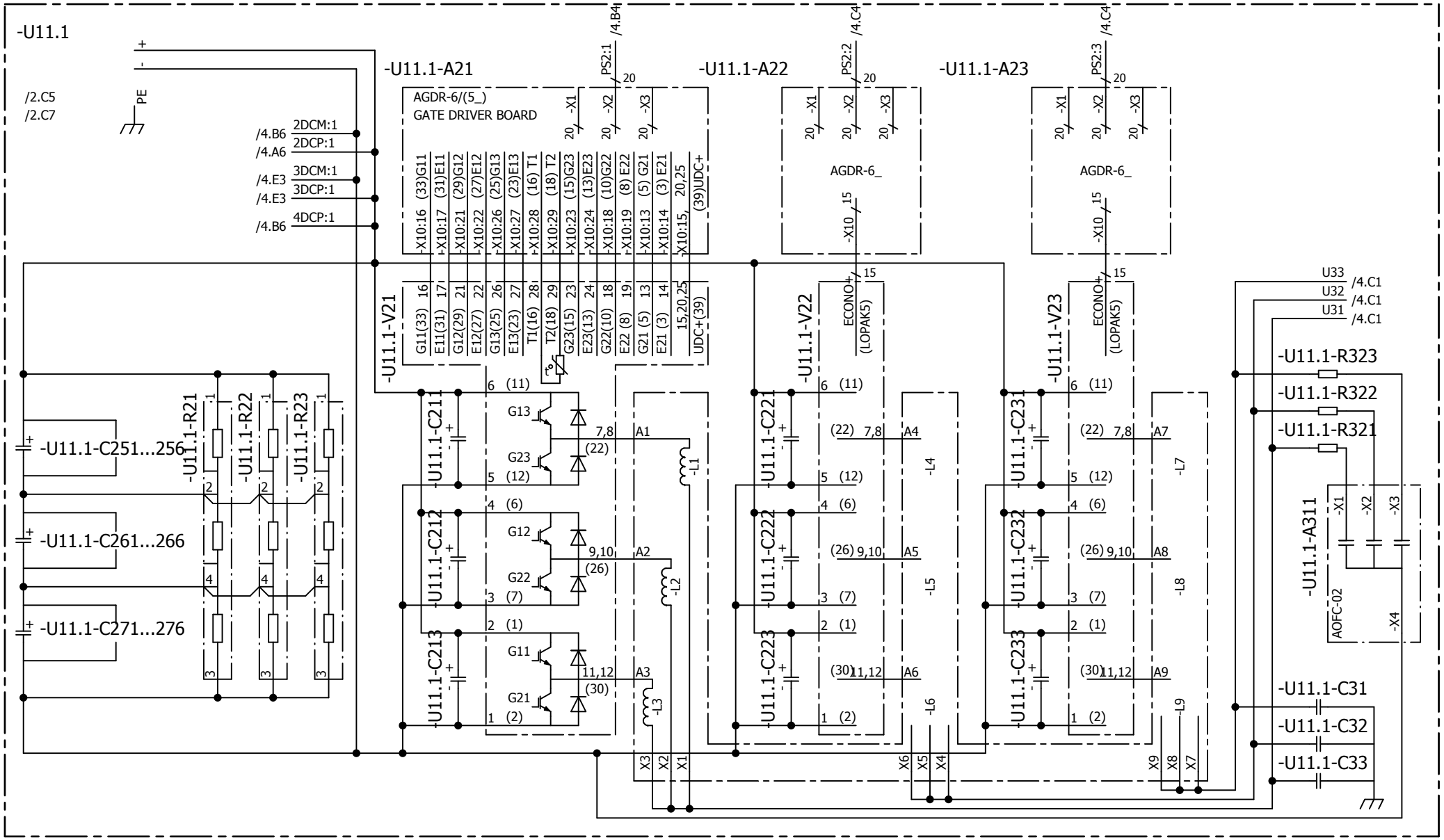
DURRA_TYPE:\CI_DIA\B07S006V009.DWG




| | | | | | |
|---|---|---|---|---|---|
| Cust. Doc. No. | Prepared J.Puroila | Title Drive Main Circuit ACS800-07 3xR8i | Product Circ.Diagram EFS2 | Item des. =01 +11 | |
| Customer | Approved 22.11.2003 M. Talja | | | | |
| | Project | | Resp.dept. | Rev.ind. E | Lang. en |
| ABB Ref. No. | | ABB Drives | Doc. No. 3AFE 64705636 | | Sheet 6 |
| | | | | | Cont. 10 |

Wechselrichter ACS 800-107-1160-7

Invertor ACS 800-107-1160-7




Erstellt mit ELCAD (R) 7.3.2 Drmno

Leitungen ohne Querschnittsangabe



| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Datum | 14.03.2007 | TAKRAF | ABB | dept. | SRs 2000 32/5.0 |
| | | | | Bearbeiter | Knappe/Kp. | | | ABB-ATG | Radni točak |
| A | . | 27.09.2007 | Hie. | Geprüft | N.Merkel | | | TE | Električna šema |
| R. | Änderung | Datum | Name | Norm | | Ursprung | Ersatz für | Ersatz durch | SRs 2000 32/5.0 Schaufelrad Stromlaufplan |

ECS-System Drmno Mine; Package 1

=1S10

+14IU1

9703-=1S10

Blatt 3

16 Bl.

380 - 480V

-X1 U1/L1 V1/L2 W1/L3 PE

<L26> 1)

-Q1 -F1..-F3

1L2 /6.1
1L3 /6.1
K4 2 /2.1
K4 4 /2.1
K4 6 /2.1

<L13> 3)

-Q2 /7.4

-Q3 /7.5

-Q4 /7.6

U1 /2.1
V1 /2.1
W1 /2.1

-X50

-X50

No. < >

1) Hauptschalter
. 
# Kurzschlußsichere
. Verlegung

6SL37107LE375AA3
K82+L26+L45+L62+M23+M70+M90+
Q80

100

Projekt: N-L91578428010001_D_AA
ELCAD-Version: 7.9.0 SP2
D:/GDOKU_AHEAD/AUFTRAG/0001578428_10_AA/TEMP/N-L91578428010001_D_AA.pro
ELCAD-Projektstruktur: Stromlaufplan | | 1 | |

| | | | | | | |
|---|---|---|---|---|---|---|
| | | | | Datum 05.06.2019 | | |
| | | | | Bearb. SYSTEM | | |
| AA | asBuild | 05.06.19 | Syst. | Gepr. | | |
| Zustand | Änderung | Datum | Name | Norm | s. Artus-Symbol | Urspr./Ers.f./Ers.d. |

Siemens AG
PD LD
NbgVo

SINAMICS S150
N-L91578428010001

Stromlaufplan

+H.A25

FS-SP

Blatt 1
11 Bl.

Zašto ovo!!!

-R2 1)

/1.5 K4_2 # -K4 2 — 2 -K4 1 — -R1 -R2
/1.5 K4_4 # 4 — 4 3 — -R3 -R4
/1.5 K4_6 # 6 — 6 5 — -R5 -R6
/4.1 T1_F10 #
/4.1 T1_F11 #
/1.7 U1 — -X1 U1/L1
/1.7 V1 — V1/L2
/1.7 W1 — W1/L3
/3.1 T2_F10 #
/3.1 T2_F11 #

-X609 14 — 13 — 21 22
-X609 PE
/7.6 X609_12 — 12
11
/3.4 X609_10 — 10
-Z4 A1 A2 — -K101 A1 A2 -Z101
9
8
/7.5 X609_7 — 7 — 3 4 — -F102 5A
6
/7.3 X609_5 — 5 — 1 2 -F101 5A — -K101 — M 1~ -G10
4
/3.6 M_VSM — 3
/3.5 P24_VSM — 2 — 1
PE1

L1 L2 L3 — -X4 5) — -A98 — PE
L1 L2 L3 — -X4 5) — -A99 — PE

-A10 L1 L2 L3

-R20 — 1U2 1U1 U2/T1 U1 /3.1
1U2 1U1 V2/T2 V1 /3.1
1U2 1U1 W2/T3 W1 /3.1
-X2
+ -

-X522 1 2 3 — -X530 1 2 5) — -X521 1 2 3 — -X520 1 2 3 4 5 6

-B52 VSM
-X524 4 3 2 1

-X500 DSA 1..8 VSM_X500 /3.7

Voltage Sensing Module

No. < >

1) siehe Betriebsanleitung
5) Bei IT-Netz
. Erdungsbügel entfernen /
. Brücke entfernen
.
# Kurzschlußsichere
. Verlegung

6SL37107LE375AA3
K82+L26+L45+L62+M23+M70+M90+Q80

100

Projekt: N-L91578428010001_D_AA
ELCAD-Version: 7.9.0 SP2
D:/GDOKU_AHEAD/AUFTRAG/0001578428_10_AA/TEMP/N-L91578428010001_D_AA.pro
ELCAD-Projektstruktur: Stromlaufplan | |2| |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
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| Zustand | Änderung | Datum | Name | Norm | s. Artus-Symbol | Urspr./Ers.f./Ers.d. | Stromlaufplan 11 Bl. |

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ELCAD-Version: 7.9.0 SP2
D:/GDOKU_AHEAD/AUFTRAG/0001578428_10_AA/TEMP/N-L91578428010001_D_AA.pro
ELCAD-Projektstruktur: Stromlaufplan | |3| |

No. < >

1) siehe Betriebsanleitung
2) Lüfter-Trafo auf
. Netzspannung anpassen
. X =Werkseinstellung

-T2 1)

PE1
/2.7 U1 — U1
/2.7 V1 — V1
/2.7 W1 — W1
/2.1 T2_F10 — -X9 L1 — (-Q10) -F10
/2.1 T2_F11 — L2 — (-Q11) -F11
-T10 2)
-K10 11 14 21 24
M 1~ -G1
M 1~ -G2

2)

| Netzspannung 380-480V | | |
|---|---|---|
| 0 | X | |
| 1L380 | | |
| 1L400 | | |
| 1L440 | | |
| 1L480 | X | |

A1 A2
-X272 2 3

PE2
C — C/+ — /4.1
D — D/- — /4.1
-F1 -F3 -F2 -F4
(Chopper) DCPA
(Chopper) DCNA
(Filter) DCPS
(Filter) DCNS

-A70 P24 M 11 14 11 14
I P D Card
CIM
DSA -X400 1..8 CU_T2_PSA /8.6
DSA -X401 1..8
DSA -X402 1..8 VSM_X500 /2.7

PE
-X9 1 P24_1 2 M_1 3 4 5 6
-X41 1 EP M1 2 EP +24V 3 - Temp 4 + Temp
-X42 P24L 3 M 2 P24L 4 M
-X46 1 BR Output+ 2 BR Output- 3 FB Input+ 4 FB Input-

T2_T24_P24 /7.6
T2_T24_M /7.6
P24_T1-T2 /4.3
M_T1-T2 /4.3
UES1_X40 /7.3
UES2_X9 /7.3
X609_10 /2.1
P24_VSM /2.1
M_VSM /2.1

6SL37107LE375AA3
K82+L26+L45+L62+M23+M70+M90+
Q80

100

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
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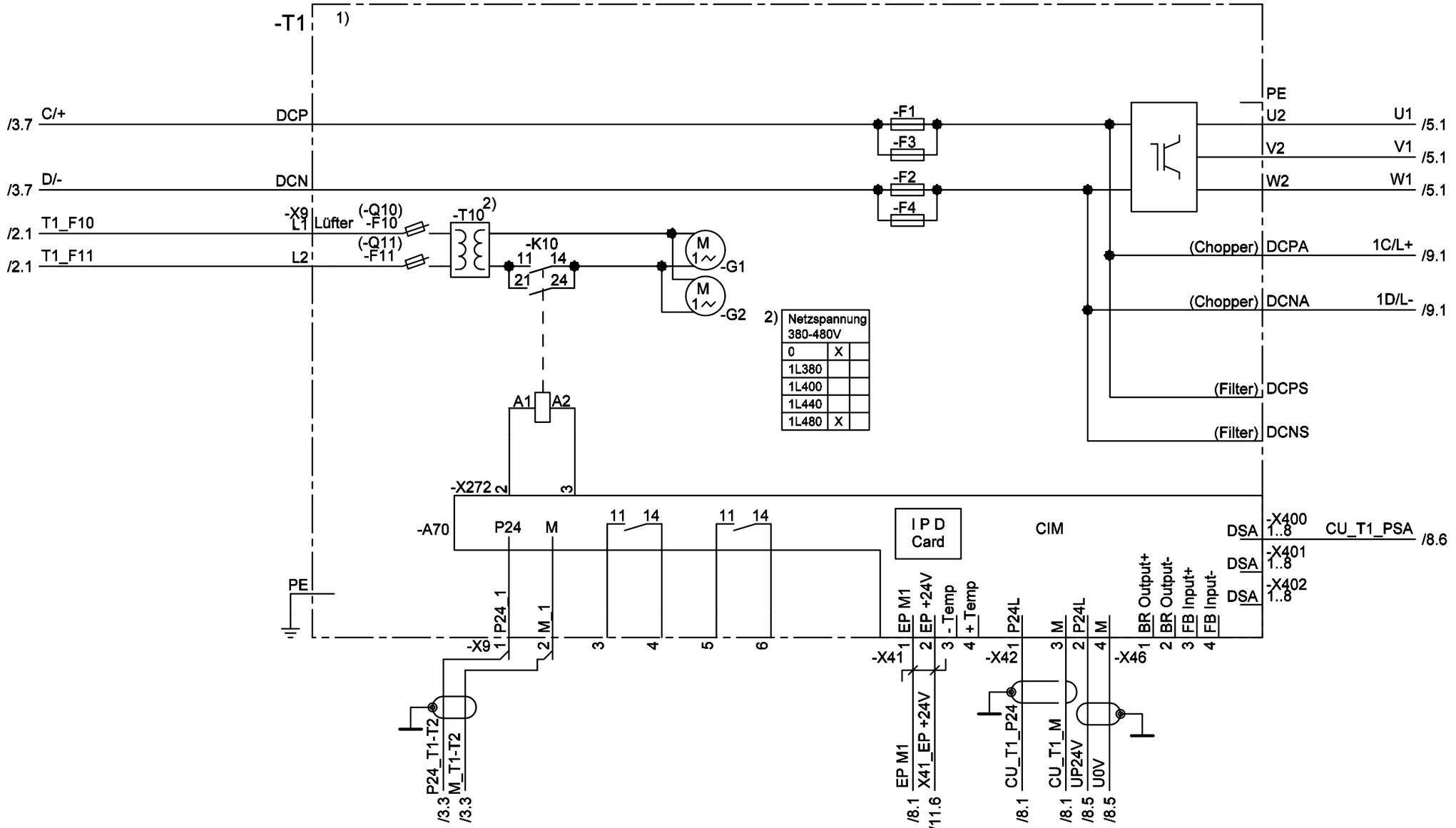
| | | | | Bearb. | SYSTEM | | | | |
| AA | asBuild | 05.06.19 | Syst. | Gepr. | | | | FS-SP | Blatt 3 |
| Zustand | Änderung | Datum | Name | Norm | s. Artus-Symbol | Urspr./Ers.f./Ers.d. | Stromlaufplan | | 11 Bl. |




1) siehe Betriebsanleitung
2) Lüfter-Trafo auf
. Netzspannung anpassen
. X =Werkseinstellung

6SL37107LE375AA3
K82+L26+L45+L62+M23+M70+M90+
Q80

100

Projekt: N-L91578428010001_D_AA
ELCAD-Version: 7.9.0 SP2
D:/GDOKU_AHEAD/AUFTRAG/0001578428_10_AA/TEMP/N-L91578428010001_D_AA.pro
ELCAD-Projektstruktur: Stromlaufplan | |4| |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | | | | Datum 05.06.2019 | | | |
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| AA | asBuild | 05.06.19 | Syst. | Gepr. | | | |
| Zustand | Änderung | Datum | Name | Norm | s. Artus-Symbol | Urspr./Ers.f./Ers.d. | |

Siemens AG
PD LD
NbgVo

SINAMICS S150
N-L91578428010001
Stromlaufplan

+H.A50
FS-SP
Blatt 4
11 Bl.

No. < >

/4.7 U1
/4.7 V1
/4.7 W1

-X2 U2/T1 V2/T2 W2/T3 PE

U V W PE

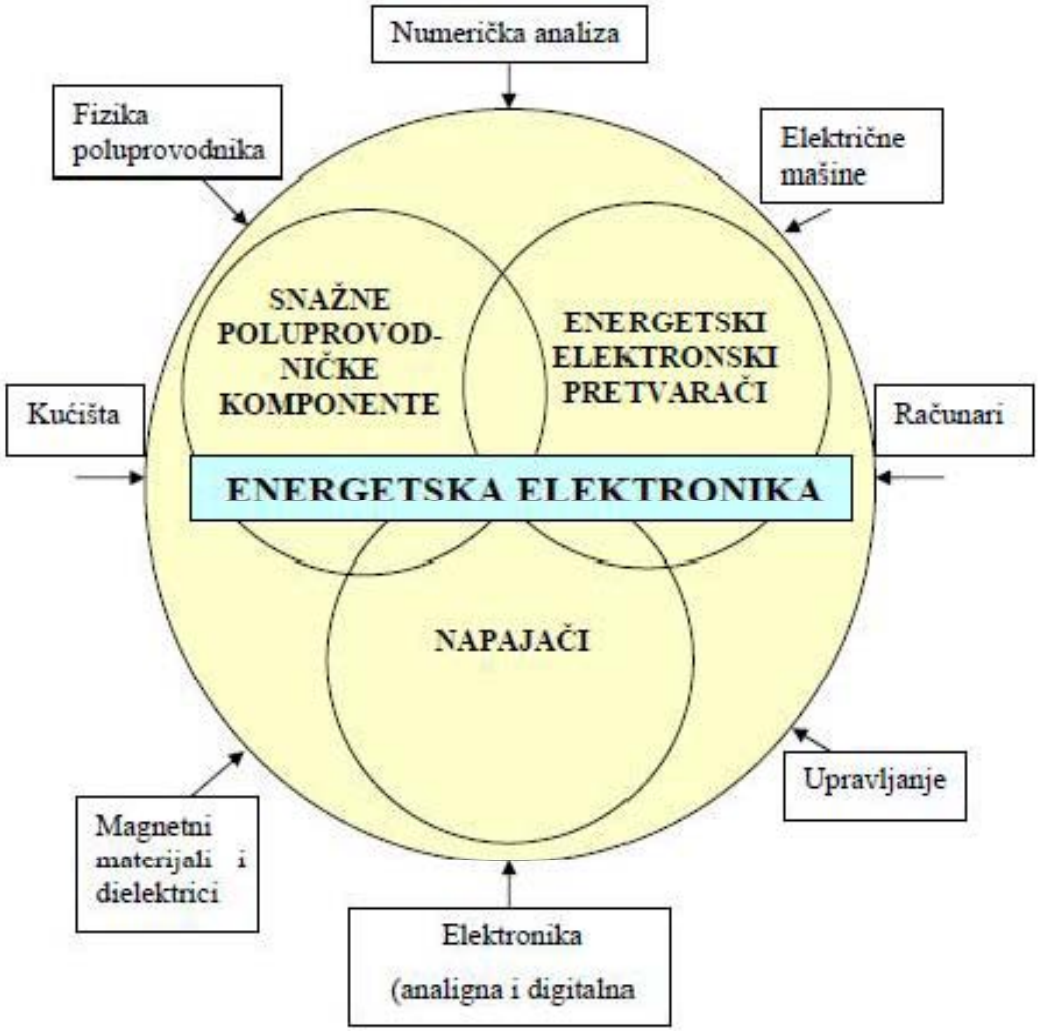
M 3~

6SL37107LE375AA3
K82+L26+L45+L62+M23+M70+M90+
Q80

100

# Ee – oblasti i znanja

Inženjeri koji se bave energetskom elektronikom treba da poznaju ne samo komponente energetske elektronike, energetske pretvarače, električne mašine, analognu i digitalnu elektroniku i teoriju upravljanja, već i mikroračunare (mikroprocesore). Svaka od ovih oblasti se i dalje razvija i omogućuje velike izazove za bavljenje i praksu.



# Međunarodna konferencija Ee

ima veoma dugu tradiciju koja potiče još od davne 1973. godine

Konferencija okupljanja eminentne međunarodne i domaće stručnjake u široj oblasti energetske elektronike, koja obuhvata i kontrolu električnih mašina, električna i hibridna vozila, distribuirane elektroenergetske sisteme i primenu obnovljivih izvora energije.

Konferencija Energetska elektronika održava se svake druge godine.

# 21st International Symposium on Power Electronics - Ee2021
## Virtual (Online)
## Final Program / Finalni Program

**Updated: Oct. 25, 2021**

## Wednesday, 27 Oct. 2021.

**PRE-CONFERENCE EVENTS**

09:00 - 09:35h **REGISTRATION / TESTING**

09:50 - 10:00h **OPENING - Tutorials** **MS Teams platform**

10:00 - 13:00h **TT-1:** **Tutorial 1** **MS Teams platform**

**Chair:** **Mladen Vučković, University of Novi Sad, Faculty of Technical Sciences, Novi Sad, Serbia**

**Huai Wang and Shuai Zhao**
Aalborg University, Aalborg, Denmark
"AI-Assisted Condition and Health Monitoring in Power Electronics"

13:00h - 14:00h **LUNCH BREAK**

14:00 - 17:00h **TT-2:** **Tutorial 2** **MS Teams platform**

**Chair:** **Barbara Vujkov, University of Novi Sad, Faculty of Technical Sciences, Novi Sad, Serbia**

**Miroslav Vasić, Luis Gomez Navajas, Javier Galindos Vicente**
Universidad Politecnicade Madrid Center for Industrial Electronics, Madrid, Spain
"Design Challenges for high-performance GaN based converters in multi-MHz applications"

17:30h - 18:30h **Testing session: Paper Video Presentations Upload and Testing**

**CONFERENCE**

| Time | Paper Id | Session | Paper title / Authors:family name | Authors: name | Affiliation | State |
|---|---|---|---|---|---|---|

## Thursday, 28 Oct. 2021.

09:00 - 09:30h **REGISTRATION / TESTING & UPLOAD**

09:45h **PLENARY Session** **OPENING CEREMONY** **MS Teams platform**

**Chair:** **Prof. Vladimir Katić, University of Novi Sad, Faculty of Technical Sciences, Novi Sad, Serbia**

**Co-chair:** **Dr. Dragan Kovačević, University of Belgrade, Belgrade, Electrical Engineering Institute "Nikola Tesla", Serbia**

**Co-chair:** **Academician Prof. Slobodan Vukosavić, University of Belgrade/Serbian Academy of Sciences and Arts, Belgrade, Serbia**

Opening speach, Prof. Vladimir Katić
Welcom speach, Dr. Dragan Kovačević
Welcom speach, Academician Prof. Slobodan Vukosavić
Novi Sad - European Capital of Culture 2021 - short video
Ee 2019 - short video
About Ee 2021 - Prof. Vladimir Katić
Official opening of the 21st Int. Symp. on Power Electronics, Prof. Srdjan Kolaković, Dean of the Faculty of Technical Sciences, Novi Sad, Serbia

10:00h **PLENARY Session - KN1** **KEY-NOTE PAPERS** **MS Teams platform**

**Chair:** **Prof. Vladimir Katić, University of Novi Sad, Faculty of Technical Sciences, Novi Sad, Serbia**

**Co-chair:** **Prof. Petar Grbović, University of Innsbruck, Innsbruck Power Elect.Lab. (i-PEL), Innsbruck, Austria**

10:00h **KN1.1** **Power Semiconductor Devices - Development Trend and Application Challenges will Silicon be replaced by WB-Technologies?**
Lorenz Leo ECPE/Infineon and the German Academy of Science, Nuremberg Germany

10:30h **KN1.2** **Energy Access – challenges and opportunities for the power electronics community**
Popović Jelena University of Twente, Twente Netherlands

11:00h **KN1.3** **Highly efficient and robust direct modular multilevel converters for grid-connected applications**
Vukosavić Slobodan University of Belgrade/Serbian Academy of Sciences and Arts, Belgrade Serbia

11:30 - 11:45h **REFRESHMENT BREAK**

| | | | | | | |
|---|---|---|---|---|---|---|
| 11:45h | **PLENARY Session - IL1** | | **INVITED LECTURES** | | **MS Teams platform** | |
| | | **Chair:** | **Prof. Vanja Amrozić, University of Ljubljana, Slovenia** | | | |
| | | **Co-chair:** | **Asist.Prof. Aleksandar Stanisavljević, University of Novi Sad, Faculty of Technical Sciences, Novi Sad, Serbia** | | | |
| 11:45h | | **IL1.1** | **Self-Designing Blocks: Turn your simulation software into a Pre-Design Tool** | | | |
| | | | Meynard | Thierry | Université de Toulouse, Laboratoire LAPLACE, Toulouse | France |
| 12:10h | | **IL1.2** | **PHIL – Power Hardware in the Loop for the real-time power emulation of electrical machines** | | | |
| | | | Lidozzi | Alessandro | Roma Tre University, Rome | Italy |
| 12:35h | | **IL1.3** | **On the True Value of Wide Bandgap Power Devices for Low and High Power Applications** | | | |
| | | | Deboy | Gerald | Infineon Technologies Austria AG, Villach | Austria |
| 13:00h - 14:00h | | | **LUNCH BREAK** | | | |
| 14:00h | **SESSION -T1.1** | | **Modern Devices in Power Electronics** | | **MS Teams platform** | |
| | | **Chair:** | **Dr. Žarko Janda, Electrical Engineering Institute "Nikola Tesla", University of Belgrade, Belgrade, Serbia** | | | |
| | | **Co-chair:** | **Assoc.Prof. Stevan Grabić, University of Novi Sad, Faculty of Technical Sciences, Novi Sad, Serbia** | | | |
| 14:00h | 02634 | **T1.1-1** | **Minimization of Commutation Losses in LLC Resonant Converter with GaN HEMTs and Si based MOSFETs** | | | |
| | | | Lukić | Emilija | University of Belgrade, School of Electrical Engineering, Belgrade | Serbia |
| | | | Čakarević | Jelena | University of Belgrade, School of Electrical Engineering, Belgrade | Serbia |
| | | | Milić | Aleksandar | University of Belgrade, School of Electrical Engineering, Belgrade | Serbia |
| 14:15h | 06634 | **T1.1-2** | **Analysis and Modeling of Temperature Dependence of I-V behavior in Silicon Carbide MOSFETs** | | | |
| | | | Bavi | Danial | Macquarie University, Sydney | Australia |
| | | | Brooks | Britt | Wolfspeed, Durham (NC) | United States |
| | | | Khandelwal | Sourabh | Macquarie University, Sydney | Australia |
| 14:30h | 02234 | **T1.1-3** | **SiC MOSFET Junction Temperature Estimation based on Output Characteristics Integrated on Gate-driver** | | | |
| | | | Mocevic | Slavko | Virginia Tech (VT), Center for Power Electronics Systems, Blacksburg | United States |
| | | | Mitrovic | Vladimir | Virginia Tech (VT), Center for Power Electronics Systems, Blacksburg | United States |
| | | | Wang | Jun | University of Nebraska–Lincoln, Lincoln | United States |
| | | | Burgos | Rolando | Virginia Tech (VT), Center for Power Electronics Systems, Blacksburg | United States |
| | | | Boroyevich | Dushan | Virginia Tech (VT), Center for Power Electronics Systems, Blacksburg | United States |
| 14:45h | 00734 | **T1.1-4** | **Test Bench Setup for characterization of GaN HEMT** | | | |
| | | | Galindos | Javier | Universidad Politécnica de Madrid, Centro de Electrónica Ind., Madrid | Spain |
| | | | Serrano | Diego | Universidad Politécnica de Madrid, Centro de Electrónica Ind., Madrid | Spain |
| | | | Vasic | Miroslav | Universidad Politécnica de Madrid, Centro de Electrónica Ind., Madrid | Spain |
| 15:00h | 03434 | **T1.1-5** | **GaN And Superjunction MOSFET Transistor Switching In A Resonant Switched-Capacitor Converter** | | | |
| | | | Folmer | Szymon | AGH University of Science and Technology, Krakow | Poland |
| | | | Stala | Robert | AGH University of Science and Technology, Krakow | Poland |
| 15:15h | 00634 | **T1.1-6** | **Analytical PFC Boost Inductor Power Loss Calculation Method in CCM** | | | |
| | | | Szczerba | Piotr | Fideltronik Poland R&D Centre, Krakow | Poland |
| | | | Raczko | Waldemar | Fideltronik Poland R&D Centre, Krakow | Poland |
| | | | Ligenza | Slawomir | Fideltronik Poland R&D Centre, Krakow | Poland |
| | | | Worek | Cezary | AGH University of Science and Technology, Krakow | Poland |
| 15:30h | 01434 | **T1.1-7** | **Analytical Design Optimization of PFC Boost Inductor in CCM** | | | |
| | | | Szczerba | Piotr | Fideltronik Poland R&D Centre, Krakow | Poland |
| | | | Raczko | Waldemar | Fideltronik Poland R&D Centre, Krakow | Poland |
| | | | Ligenza | Slawomir | Fideltronik Poland R&D Centre, Krakow | Poland |
| | | | Worek | Cezary | AGH University of Science and Technology, Krakow | Poland |
| 15:45h | 03734 | **T1.1-8** | **Modeling and simulation of power thyristors in power supply for induction heating with respect to their failure rates and reliability** | | | |
| | | | Dankov | Dobroslav | Technical University of Gabrovo , Gabrovo | Bulgaria |
| | | | Prodanov | Prodan | Technical University of Gabrovo , Gabrovo | Bulgaria |

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| 14:00h | **SESSION T4.1** | | **Control of Modern Converters** | | **MS Teams platform** | |
| | | **Chair:** | **Prof. Seddik Bacha, Grenoble-Alpes University, G2Elab, Grenoble, France** | | | |
| | | **Co-chair:** | **Prof. Vladimir Katić, University of Novi Sad, Faculty of Technical Sciences, Novi Sad, Serbia** | | | |
| 14:00h | 03634 | **T4.1-1** | **Minimum Deviation Controller for Indirect Energy Transfer Converters** | | | |
| | | | Josipovic | Ksenija | University of Toronto, Toronto | Canada |
| | | | Prodic | Aleksandar | University of Toronto, Toronto | Canada |
| | | | Lu | Liangji | University of Toronto, Toronto | Canada |
| | | | Roberts | Gianluca | University of Toronto, Toronto | Canada |
| | | | Calabrese | Giacomo | Texas Instruments, Freising | Germany |
| | | | Neveu | Florian | Texas Instruments, Freising | Germany |
| 14:15h | 01734 | **T4.1-2** | **Control Algorithms for Matrix Converters With Low Mathematical Complexity** | | | |
| | | | Igney | Jens | University of Erlangen-Nuremberg, Inst. of Elec.Dr. and Mach., Erlangen | Germany |
| | | | Hahn | Ingo | University of Erlangen-Nuremberg, Inst. of Elec.Dr. and Mach., Erlangen | Germany |
| 14:30h | 00934 | **T4.1-3** | **Algorithm and block diagram of an electronic system for control of energy flows in residential premises** | | | |
| | | | Stoev | Iordan | University of Ruse "Angel Kanchev", Ruse | Bulgaria |
| | | | Zaharieva | Snezhinka | University of Ruse "Angel Kanchev", Ruse | Bulgaria |
| | | | Borodzhieva | Adriana | University of Ruse "Angel Kanchev", Ruse | Bulgaria |
| | | | Petrova | Teodora | Trakia University, Stara Zagora | Bulgaria |
| 14:45h | 01934 | **T4.1-4** | **Half-Bridge Voltage Source Inverter Control Development Using HIL System** | | | |
| | | | Brandis | Andrej | University of Osijek, Fac. of Elec.Eng., Comp.Sc. and Infor.Tech., Osijek | Croatia |
| | | | Pelin | Denis | University of Osijek, Fac. of Elec.Eng., Comp.Sc. and Infor.Tech., Osijek | Croatia |
| | | | Topić | Danijel | University of Osijek, Fac. of Elec.Eng., Comp.Sc. and Infor.Tech., Osijek | Croatia |
| | | | Knežević | Goran | University of Osijek, Fac. of Elec.Eng., Comp.Sc. and Infor.Tech., Osijek | Croatia |
| 15:00h | 02534 | **T4.1-5** | **Influence of system delay on current controller stability and performance at grid-side inverter with LCL filter** | | | |
| | | | Stojanović | Lazar | University of Belgrade, School of Electrical Engineering, Belgrade | Serbia |
| | | | Bakić | Filip | University of Belgrade, School of Electrical Engineering, Belgrade | Serbia |
| | | | Milić | Aleksandar | University of Belgrade, School of Electrical Engineering, Belgrade | Serbia |
| 15:15h | 02834 | **T4.1-6** | **Analysis and DSP Implementation of Multi-sampled Three-Phase Current Controllers** | | | |
| | | | Petric | Ivan | University of Padova, Padova | Italy |
| | | | Cvetanovic | Ruzica | University of Belgrade, School of Electrical Engineering, Belgrade | Serbia |
| | | | Mattavelli | Paolo | University of Padova, Padova | Italy |
| | | | Buso | Simone | University of Padova, Padova | Italy |
| | | | Vukosavic | Slobodan | University of Belgrade, School of Electrical Engineering, Belgrade | Serbia |
| 15:30h | 00834 | **T4.1-7** | **Automatic System for Saving Cooking Gas** | | | |
| | | | Ciufudean | Calin | Stefan cel Mare University, Suceava | Romania |
| | | | Buzduga | Corneliu | Stefan cel Mare University, Suceava | Romania |
| 16:00 - 16:15h | | | **REFRESHMENT BREAK** | | | |

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| 16:15h | **SESSION -T1.2** | | **DC/DC Converters** | | **MS Teams platform** | |
| | | **Chair:** | **Prof. Branko Blanuša, University of Banja Luka, Faculty of Electrical Engineering, Banja Luka, Bosnia and Herzegovina** | | | |
| | | **Co-chair:** | **Dr. Vladimir Vukić, Electrical Engineering Institute "Nikola Tesla", University of Belgrade, Belgrade, Serbia** | | | |
| 16:15h | 02734 | **T1.2-1** | **Analysis, Modeling, and Simulation of the Multiple Output Flyback Converter used in Various Motor Drive Applications** | | | |
| | | | Tahmaz | Oguz | AVL Research & Engineering TR, Istanbul | Turkey |
| | | | Yildiz | Ali Bekir | Kocaeli University, Kocaeli | Turkey |
| 16:30h | 00234 | **T1.2-2** | **Active-Clamped Flyback DC-DC Converter in Three-Phase Application** | | | |
| | | | Vračar | Darko | BRUSA Elektronik (München) GmbH, Munich | Germany |
| | | | Pavlovský | Martin | BRUSA Elektronik (München) GmbH, Munich | Germany |
| | | | Pejović | Predrag | University of Belgrade, School of Electrical Engineering, Belgrade | Serbia |
| 16:45h | 04534 | **T1.2-3** | **Analysis, Modeling and Simulation of Two Stage Buck-Boost Converter with Switched-Capacitor** | | | |
| | | | Birtek | Gizem | Kocaeli University, Kocaeli | Turkey |
| | | | Yildiz | Ali Bekir | Kocaeli University, Kocaeli | Turkey |
| 17:00h | 05334 | **T1.2-4** | **A New Tapped Inductor Quadratic DC-DC Converter** | | | |
| | | | Ionici | Cristian-Valentin | Politehnica University Timisoara, Timisoara | Romania |
| | | | Lascu | Dan | Politehnica University Timisoara, Timisoara | Romania |
| 17:15h | 01534 | **T1.2-5** | **Generalised Fourier Series Model for Dual Active Bridge DC/DC Converter based on Triple Phase Shift Modulation Method** | | | |
| | | | Rahman | M. I. | University of Aberdeen, Aberdeen | United Kingdom |
| | | | Jovcic | Dragan | University of Aberdeen, Aberdeen | United Kingdom |
| | | | Ahmed | K. H. | University of Aberdeen, Aberdeen | United Kingdom |
| 17:30h | 05534 | **T1.2-6** | **A Buck Converter Suitable in Low Step-Down Applications** | | | |
| | | | Botila | Delia-Anca | Politehnica University Timisoara, Timisoara | Romania |
| | | | Lascu | Dan | Politehnica University Timisoara, Timisoara | Romania |
| | | | Pop-Calimanu | Ioana-Monica | Politehnica University Timisoara, Timisoara | Romania |
| 17:45h | 06034 | **T1.2-7** | **Comparative Analysis of Input-Series-Output-Series Parital Power Rated DC to DC Converters** | | | |
| | | | Lopušina | Igor | University of Innsbruck, Innsbruck Power Elect.Lab. (i-PEL), Innsbruck | Austria |
| | | | Grbović | Petar | University of Innsbruck, Innsbruck Power Elect.Lab. (i-PEL), Innsbruck | Austria |
| 18:00h | 06934 | **T1.2-8** | **The Transient Regime of a DC Relay Supplied a Charged Condenser** | | | |
| | | | Toader | Dumitru | Politehnica University Timisoara, Dep. Fund. of Phys.for Eng., Timisoara | Romania |
| | | | Blaj | Constantin | Politehnica University Timisoara, Dep. Fund. of Phys.for Eng., Timisoara | Romania |
| | | | Greconici | Marian | Politehnica University Timisoara, Dep. Fund. of Phys.for Eng., Timisoara | Romania |
| | | | Solea | Claudiu | Politehnica University Timisoara, Dep. Fund. of Phys.for Eng., Timisoara | Romania |
| | | | Vesa | Daniela | Politehnica University Timisoara, Dep. Fund. of Phys.for Eng., Timisoara | Romania |
| | | | Maghet | Adrian | Politehnica University Timisoara, Dep. Fund. of Phys.for Eng., Timisoara | Romania |

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| 16:15h | **SESSION T7.1** | | **Renewable Energy Sources and Grids** | | **MS Teams platform** | |
| | | **Chair:** | **Assoc.Prof. Čedomir Zeljković, University of Banja Luka, Faculty of Electrical Engineering, Banja Luka, Bosnia and Herzegovina** | | | |
| | | **Co-chair:** | **Assist.Prof. Ivan Todorović, University of Novi Sad, Faculty of Technical Sciences, Novi Sad, Serbia** | | | |
| 16:15h | 01634 | **T7.1-1** | **Multi-Level, Partial Power Processing and WBG Devices - Future of 1500-V Photovoltaic Systems** | | | |
| | | | Stevanovic | Branislav | Universidad Politécnica de Madrid, Centro de Electrónica Ind., Madrid | Spain |
| | | | Alou | Pedro | Universidad Politécnica de Madrid, Centro de Electrónica Ind., Madrid | Spain |
| | | | Vasic | Miroslav | Universidad Politécnica de Madrid, Centro de Electrónica Ind., Madrid | Spain |
| 16:30h | 03034 | **T7.1-2** | **Probabilistic load flow calculation using Halton quasi-random numbers in modern power systems with wind and solar generation** | | | |
| | | | Mišurović | Filip | University of Montenegro, Faculty of Electrical Engineering, Podgorica | Montenegro |
| | | | Mujović | Saša | University of Montenegro, Faculty of Electrical Engineering, Podgorica | Montenegro |
| 16:45h | 03834 | **T7.1-3** | **Siting and Sizing of Renewable Energy Sources: A Case Study on Montenegro** | | | |
| | | | Šćekić | Lazar | University of Montenegro, Faculty of Electrical Engineering, Podgorica | Montenegro |
| | | | Kontić | Mićo | Crnogorski elektroprenosni sistem, National dispat. center, Podgorica | Montenegro |
| | | | Srdanović | Neda | Crnogorski elektroprenosni sistem, National dispat. center, Podgorica | Montenegro |
| 17:00h | 04934 | **T7.1-4** | **An Improved Direct Voltage Component Extraction Method for Grid Connected Converters** | | | |
| | | | Cvetanovic | Ruzica | University of Belgrade, School of Electrical Engineering, Belgrade | Serbia |
| | | | Janda | Zarko | University of Belgrade, Electrical Eng. Institute Nikola Tesla, Belgrade | Serbia |
| 17:15h | 05434 | **T7.1-5** | **GIS for Public Lighting Installations** | | | |
| | | | Špica | Sanja | University of Novi Sad, Faculty of Technical Sciences, Novi Sad | Serbia |
| | | | Čeliković | Milan | University of Novi Sad, Faculty of Technical Sciences, Novi Sad | Serbia |
| | | | Popov | Srđan | University of Novi Sad, Faculty of Technical Sciences, Novi Sad | Serbia |
| 18:15h | | | **Social Activities (Virtual Welcome Party)** | | | |

## Friday, 29 Oct. 2021.

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| 08:00 - 08:45h | | | **REGISTRATION / TESTING & UPLOAD** | | | |
| 09:00h | **SESSION -T2.1** | | **Automotive and Industrial Drives** | | **MS Teams platform** | |
| | | **Chair:** | **Prof. Darko Marčetić, University of Novi Sad, Faculty of Technical Sciences, Novi Sad, Serbia** | | | |
| | | **Co-chair:** | **Prof. Petar Matić, University of Banja Luka, Faculty of Electrical Engineering, Banja Luka, Bosnia and Herzegovina** | | | |
| 09:00h | 05934 | **T2.1-1** | **Analysis of power distribution systems based on low-voltage DC/DC power supplies for automated guided vehicles (AGV)** | | | |
| | | | Hanschek | Andreas J. | University of Innsbruck, Innsbruck Power Elect.Lab. (i-PEL), Innsbruck | Austria |
| | | | Bouvier | Yann E. | University of Innsbruck, Innsbruck Power Elect.Lab. (i-PEL), Innsbruck | Austria |
| | | | Jesacher | Erwin | University of Innsbruck, Innsbruck Power Elect.Lab. (i-PEL), Innsbruck | Austria |
| | | | Grbović | Petar J. | University of Innsbruck, Innsbruck Power Elect.Lab. (i-PEL), Innsbruck | Austria |
| 09:15h | 02334 | **T2.1-2** | **Analysis of Non-Regenerative Resistive Dynamic Braking Behavior of PMSM** | | | |
| | | | Ekim | Melih Nafi | Akim Metal A.Ş., Istanbul | Turkey |
| | | | Unal | Alpay Oguz | Akim Metal A.Ş., Istanbul | Turkey |
| | | | Yildiz | Ali Bekir | Kocaeli University, Kocaeli | Turkey |
| 09:30h | 02934 | **T2.1-3** | **Matlab/Simulink Based Energy Consumption Prediction of Electric Vehicles** | | | |
| | | | Janković | Filip | University of Montenegro, Faculty of Electrical Engineering, Podgorica | Montenegro |
| | | | Šćekić | Lazar | University of Montenegro, Faculty of Electrical Engineering, Podgorica | Montenegro |
| | | | Mujović | Saša | University of Montenegro, Faculty of Electrical Engineering, Podgorica | Montenegro |
| 09:45h | 07934 | **T2.1-4** | **Modelling of three-phase interleaved DC-DC converter for hybrid energy storage application in electric vehicles** | | | |
| | | | Vukajlovic | Nikola | University of Novi Sad, Faculty of Technical Sciences, Novi Sad | Serbia |
| | | | Popadic | Bane | University of Novi Sad, Faculty of Technical Sciences, Novi Sad | Serbia |
| | | | Milicevic | Dragan | University of Novi Sad, Faculty of Technical Sciences, Novi Sad | Serbia |
| | | | Dumnic | Boris | University of Novi Sad, Faculty of Technical Sciences, Novi Sad | Serbia |
| | | | Mitrovic | Zoran | University of Novi Sad, Faculty of Technical Sciences, Novi Sad | Serbia |
| 10:00h | 02034 | **T2.1-5** | **Extended SVM for direct matrix converter based drive operating under unbalanced grid conditions** | | | |
| | | | Stanić | Luka | University of Belgrade, School of Electrical Engineering, Belgrade | Serbia |
| | | | Ristić | Leposava | University of Belgrade, School of Electrical Engineering, Belgrade | Serbia |
| | | | Bebić | Milan | University of Belgrade, School of Electrical Engineering, Belgrade | Serbia |
| | | | Rivera | Marco | University of Talca, Department of Electrical Engineering, Talca | Chile |
| 10:15h | 04734 | **T2.1-6** | **Revitalization and Modernization of Dragline Excavators with Limited Budget** | | | |
| | | | Bebić | Milan | University of Belgrade, School of Electrical Engineering, Belgrade | Serbia |
| | | | Rašić | Neša | University of Belgrade, School of Electrical Engineering, Belgrade | Serbia |
| | | | Vojvodić | Nikola | University of Belgrade, School of Electrical Engineering, Belgrade | Serbia |
| | | | Jeftenić | Borislav | EMP Inženjering 2016, Belgrade | Serbia |

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| 09:00h | **SESSION -T6.1** | | **POWER QUALITY** | | **MS Teams platform** | |
| | | **Chair:** | **Assist.Prof. Martin Ćalasan, University of Montenegro, Faculty of Electrical Engineering, Podgorica, Montenegro** | | | |
| | | **Co-chair:** | **Assis.Prof. Aleksandar Stanisavljević, University of Novi Sad, Faculty of Technical Sciences, Novi Sad, Serbia** | | | |
| 09:00h | 02134 | **T6.1-1** | **Calculation and Spectral Analysis of DC-Link Current for three phase PWM inverter** | | | |
| | | | Sun | Jianxia | Beijing Institute of Technology, Beijing | China |
| | | | Lin | Cheng | Beijing Institute of Technology, Beijing | China |
| 09:15h | 06334 | **T6.1-2** | **Voltage Sags Duration Probability Distribution Function** | | | |
| | | | Katić | Vladimir | University of Novi Sad, Faculty of Technical Sciences, Novi Sad | Serbia |
| | | | Milićević | Srđan | University of Novi Sad, Faculty of Technical Sciences, Novi Sad | Serbia |
| | | | Stanisavljević | Aleksandar | University of Novi Sad, Faculty of Technical Sciences, Novi Sad | Serbia |
| 09:30h | 01834 | **T6.1-3** | **Comparison of Sinusoidal PWM Techniques in Terms of Harmonic Analysis in Three and Five Level Diode Clamped Inverter** | | | |
| | | | Badak | Ufuk | Kocaeli University, Kocaeli | Turkey |
| | | | Yildiz | Ali Bekir | Kocaeli University, Kocaeli | Turkey |
| 09:45h | 07034 | **T6.1-4** | **Application of the PV systems for non-linear load current compensation** | | | |
| | | | Trifunjagić | Viktor | University of Novi Sad, Faculty of Technical Sciences, Novi Sad | Serbia |
| | | | Katić | Vladimir | University of Novi Sad, Faculty of Technical Sciences, Novi Sad | Serbia |
| | | | Stanisavljević | Aleksandar | University of Novi Sad, Faculty of Technical Sciences, Novi Sad | Serbia |
| 10:00h | 07434 | **T6.1-5** | **Training an LSTM Voltage Sags Classificator on a Synthetic Dataset** | | | |
| | | | Turović | Radovan | University of Novi Sad, Faculty of Technical Sciences, Novi Sad | Serbia |
| | | | Dragan | Dinu | University of Novi Sad, Faculty of Technical Sciences, Novi Sad | Serbia |
| | | | Stanisavljević | Aleksandar | University of Novi Sad, Faculty of Technical Sciences, Novi Sad | Serbia |
| | | | Gojić | Gorana | University of Novi Sad, Faculty of Technical Sciences, Novi Sad | Serbia |
| | | | Petrović | Veljko | University of Novi Sad, Faculty of Technical Sciences, Novi Sad | Serbia |
| | | | Katić | Vladimir | University of Novi Sad, Faculty of Technical Sciences, Novi Sad | Serbia |
| | | | Gajić | Dušan | University of Novi Sad, Faculty of Technical Sciences, Novi Sad | Serbia |
| 10:30 - 10:45h | | | **REFRESHMENT BREAK** | | | |
| 10:45h | **PLENARY Session - KN2** | | **KEY-NOTE PAPERS** | | **MS Teams platform** | |
| | | **Chair:** | **Prof. Miroslav Vasić, Universidad Politécnica de Madrid, Centro de Electrónica Ind., Madrid, Spain** | | | |
| | | **Co-chair:** | **Assoc.Prof. Dušan Gajić, University of Novi Sad, Faculty of Technical Sciences, Novi Sad, Serbia** | | | |
| 10:45h | | **KN2.1** | **"Transformers" for Artificial Intelligence** | | | |
| | | | Kisačanin | Branislav | Nvidia Corp., Santa Clara, USA/Centre for AI, Novi Sad | USA / Serbia |
| 11:15h | | **KN2.2** | **AI Applications for Power Electronics – Challenges and Opportunities** | | | |
| | | | Wang | Huai | Aalborg University, Aalborg | Denmark |

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| 11:45h | **PLENARY Session - IP1** | | **INVITED LECTURES** | | **MS Teams platform** | |
| | | **Chair:** | **Prof. Vladimir Katić, University of Novi Sad, Faculty of Technical Sciences, Novi Sad, Serbia** | | | |
| | | **Co-chair:** | **Assoc.Prof. Dinu Dragan, University of Novi Sad, Faculty of Technical Sciences, Novi Sad, Serbia** | | | |
| 11:45h | 07234 | **IP1.1** | **Blockchain-based Smart Decentralized Energy Trading for Grids with Renewable Energy Systems** | | | |
| | | | Gajić | Dušan | University of Novi Sad, Faculty of Technical Sciences, Novi Sad | Serbia |
| | | | Petrović | Veljko | University of Novi Sad, Faculty of Technical Sciences, Novi Sad | Serbia |
| | | | Horvat | Nebojša | University of Novi Sad, Faculty of Technical Sciences, Novi Sad | Serbia |
| | | | Dragan | Dinu | University of Novi Sad, Faculty of Technical Sciences, Novi Sad | Serbia |
| | | | Stanisavljević | Aleksandar | University of Novi Sad, Faculty of Technical Sciences, Novi Sad | Serbia |
| | | | Katić | Vladimir | University of Novi Sad, Faculty of Technical Sciences, Novi Sad | Serbia |
| 12:10h | 06534 | **IP1.2** | **Advancements on Real-Time Simulation for High Switching Frequency Power Electronics Applications** | | | |
| | | | Osório | Caio | Typhoon Hil, Inc., Novi Sad | Serbia |
| | | | Miletic | Milos | Typhoon Hil, Inc., Novi Sad | Serbia |
| | | | Zelic | Jovan | Typhoon Hil, Inc., Novi Sad | Serbia |
| | | | Majstorovic | Dusan | Typhoon Hil, Inc., Novi Sad | Serbia |
| | | | Gagrica | Ognjen | Typhoon Hil, Inc., Novi Sad | Serbia |
| 12:35h | 06434 | **IP1.3** | **HIL-based certification for converter controllers: Advantages, challenges and outlooks** | | | |
| | | | Magnago | Henrique | Typhoon Hil, Inc., Novi Sad | Serbia |
| | | | Horst Figueira | Henrique | Typhoon Hil, Inc., Novi Sad | Serbia |
| | | | Gagrica | Ognjen | Typhoon Hil, Inc., Novi Sad | Serbia |
| | | | Majstorovic | Dusan | Typhoon Hil, Inc., Novi Sad | Serbia |
| 13:00h - 14:00h | | | **LUNCH BREAK** | | | |

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| 14:00h | **INDUSTRY SESS. - IS-1** | **Special Session - Industry Session** | | **MS Teams platform** | | |
| | **Chair:** | **Prof. Slobodan Mirčevski, "St. Kyril and Methodij" University, FEIT, Skopje, North Macedonia** | | | | |
| | **Co-chair:** | **Barbara Vujkov, , University of Novi Sad, Faculty of Technical Sciences, Novi Sad, Serbia** | | | | |
| 14:00h | **IS-1.1** | **Typhoon HIL Presentation: Next-generation model-based tools for innovative teaching and research.** | | | | |
| | | Santo | Debora | Typhoon Hil, Inc., Novi Sad | Serbia | |
| | | Jelic | Dimitrije | Typhoon Hil, Inc., Novi Sad | Serbia | |
| 14:45h | **IS-1.2** | **Brose Presentation** | | | | |
| | | Vujkov | Kristina | Brose d.o.o., Pančevo | Serbia | |
| 15:30h | **IS-1.3** | **The Renewable Energy Sources for smart sustainable health Centers, University Education and other public buildings (RESCUE), Interreg-IPA CBC Croatia-Serbia project** | | | | |
| | | Dumnić | Boris | University of Novi Sad, Faculty of Technical Sciences, Novi Sad | Serbia | |
| | | Šljivac | Damir | University of Osijek, Fac. of Elec.Eng., Comp.Sc. and Infor.Tech., Osijek | Croatia | |
| | | Stojkov | Marinko | University of Slavonski Brod, Slavonski Brod | Croatia | |
| | | Varda | Nikolina | Clinical Hospital Center, Osijek | Croatia | |
| | | Lukić | Radisav | Clinical Center of Vojvodina, Novi Sad | Serbia | |
| 15:45 - 16:00h | | **REFRESHMENT BREAK** | | | | |
| 16:00h | **SESSION -T3.1** | **Electric Machines** | | **MS Teams platform** | | |
| | **Chair:** | **Dr. Đorđe Stojić, Electrical Engineering Institute "Nikola Tesla", University of Belgrade, Belgrade, Serbia** | | | | |
| | **Co-chair:** | **Assist.Prof. Dejan Jerkan, University of Novi Sad, Faculty of Technical Sciences, Novi Sad, Serbia** | | | | |
| 16:00h | 01134 **T3.1-1** | **Non-linear Observer Based Stator Inter-turn Short-circuit Fault Detection in 3-Φ Induction Motor** | | | | |
| | | Duvvuri | SSSR Sarathbabu | Shri Vishnu Engineering College for Women, Bhimavaram | India | |
| | | S M | Padmaja | Shri Vishnu Engineering College for Women, Bhimavaram | India | |
| 16:15h | 05234 **T3.1-2** | **FCS-MPC of a DMC-fed Induction Machine with Unity Input Power Factor Using Rotating Vectors** | | | | |
| | | Mekhilef | Aymen Abdelmounaim | Ecole Nationale Polytechnique, Algeria | Algeria | |
| | | Benachour | Ali | Ecole Supérieure des Sciences Appliquées d'Alger, Algeria | Algeria | |
| | | Dali | Ali | Centre de Développement des Energies Renouvelables, Algeria | Algeria | |
| | | Berkouk | El Madjid | Ecole Nationale Polytechnique, Algeria | Algeria | |
| 16:30h | 02434 **T3.1-3** | **Design Procedure for High-Frequency Transformer in LLC Resonant Topology** | | | | |
| | | Obradović | Katarina | University of Belgrade, School of Electrical Engineering, Belgrade | Serbia | |
| | | Plavšić | Jovana | University of Belgrade, School of Electrical Engineering, Belgrade | Serbia | |
| | | Milić | Aleksandar | University of Belgrade, School of Electrical Engineering, Belgrade | Serbia | |
| 16:45h | 03934 **T3.1-4** | **Influence of phase coupling on the performance of 8/6 SRM** | | | | |
| | | Mihic | Dragan | University of Belgrade, School of Electrical Engineering, Belgrade | Serbia | |
| | | Brkovic | Bogdan | University of Belgrade, School of Electrical Engineering, Belgrade | Serbia | |
| | | Terzic | Mladen | University of Belgrade, School of Electrical Engineering, Belgrade | Serbia | |
| | | Koprivica | Zarko | University of Belgrade, School of Electrical Engineering, Belgrade | Serbia | |
| 17:00h | 06134 **T3.1-5** | **Inductance Identification of the Surface Permanent Magnet Synchronous Machines with sinusoidal voltage test signals** | | | | |
| | | Vučković | Mladen | University of Novi Sad, Faculty of Technical Sciences, Novi Sad | Serbia | |
| | | Dumnić | Boris | University of Novi Sad, Faculty of Technical Sciences, Novi Sad | Serbia | |
| | | Vasić | Veran | University of Novi Sad, Faculty of Technical Sciences, Novi Sad | Serbia | |
| | | Vujkov | Barbara | University of Novi Sad, Faculty of Technical Sciences, Novi Sad | Serbia | |
| | | Popović | Vladimir | University of Novi Sad, Faculty of Technical Sciences, Novi Sad | Serbia | |
| 17:15h | 01234 **T3.1-6** | **Minimization of an Electromagnetic Torque Ripple of a Five-Phase IM Operated under One-Phase Fault** | | | | |
| | | Zaskalicky | Pavel | Technical University of Košice, Kosice | Slovakia | |

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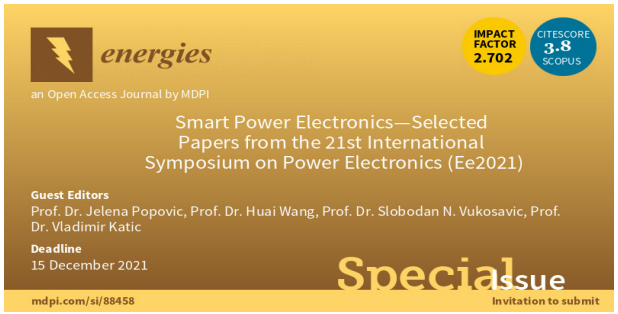
| 16:00h | **SESSION T4.2** | | **Control and Measurement in Power Electronics** | | **MS Teams platform** | |
| | | **Chair:** | **Assoc.Prof. Milutin Petronijević, University of Niš, Faculty of Electronic Engineering, Niš, Serbia** | | | |
| | | **Co-chair:** | **Assoc.Prof. Milan Bebić, University of Belgrade, School of Electrical Engineering, Belgrade, Serbia** | | | |
| 16:00h | 00334 | **T4.2-1** | **Predictive Control of an Induction Machine Fed by a Voltage Source Inverter** | | | |
| | | | Rivera | Marco | University of Talca, Department of Electrical Engineering, Talca | Chile |
| | | | Riveros | José | Universidad Nacional de Asunción, Asuncion | Paraguay |
| | | | Wheeler | Patrick | The University of Nottingham, Nottingham | United Kingdom |
| | | | Ristic | Leposava | University of Belgrade, School of Electrical Engineering, Belgrade | Serbia |
| | | | Mirzaeva | Galina | The University of Newcastle, Newcastle | Australia |
| | | | Zanchetta | Pericle | The University of Nottingham, Nottingham | United Kingdom |
| 16:15h | 00434 | **T4.2-2** | **The Selection of Cost Functions in Model Predictive Control Applications** | | | |
| | | | Rivera | Marco | University of Talca, Department of Electrical Engineering, Talca | Chile |
| | | | Rojas | Diego | University of Talca, Department of Electrical Engineering, Talca | Chile |
| | | | Wheeler | Patrick | The University of Nottingham, Nottingham | United Kingdom |
| 16:30h | 07534 | **T4.2-3** | **Improvement of PMSM Control Using Reinforcement Learning Deep Deterministic Policy Gradient Agent** | | | |
| | | | Nicola | Marcel | National Institute for Research, ICMET Craiova, Craiova | Romania |
| | | | Nicola | Claudiu-Ionel | National Institute for Research, ICMET Craiova, Craiova | Romania |
| 16:45h | 07734 | **T4.2-4** | **Tuning of PI Speed Controller for PMSM Control System Using Computational Intelligence** | | | |
| | | | Nicola | Marcel | National Institute for Research, ICMET Craiova, Craiova | Romania |
| | | | Nicola | Claudiu-Ionel | National Institute for Research, ICMET Craiova, Craiova | Romania |
| 17:00h | 04034 | **T4.2-5** | **Approaches to Reducing of the Active Power Measurement Error for a Method Based on Averaging of Instantaneous Power** | | | |
| | | | Serov | Andrey | National Research University, Moscow Power Eng. Institute, Moskow | Russian Federation |
| 17:15h | 00134 | **T4.2-6** | **Method of Reducing of the Complex Spectrum Measurement Error In Case of Applying of the Quadrature Demodulation Technique** | | | |
| | | | Serov | Andrey | National Research University, Moscow Power Eng. Institute, Moskow | Russian Federation |
| | | | Serov | Nikolay | National Research University, Moscow Power Eng. Institute, Moskow | Russian Federation |
| | | | Shatokhin | Alexander | National Research University, Moscow Power Eng. Institute, Moskow | Russian Federation |
| 17:30h | 05634 | **T4.2-7** | **Analysis of the influence of non-simultaneous sampling on the measurement of three-phase instantaneous power** | | | |
| | | | Vojvodić | Nikola | University of Belgrade, School of Electrical Engineering, Belgrade | Serbia |
| | | | Bebić | Milan | University of Belgrade, School of Electrical Engineering, Belgrade | Serbia |
| 18:00h | **PLENARY Session** | | **Awards Session (Media sponsor - Journal Energies)** | | **MS Teams platform** | |
| | | **Chair:** | **Prof. Vladimir Katić, University of Novi Sad, Faculty of Technical Sciences, Novi Sad, Serbia** | | | |
| | | **Co-chair:** | **Academician Prof. Slobodan Vukosavić, University of Belgrade/Serbian Academy of Sciences and Arts, Belgrade, Serbia** | | | |

- Best Paper Award (300$, sponsored by Energies)
- Best Student Paper Awards
  (free registration fee at Ee2023, sponsored by Power Electronics Society of Serbia)
- National Best Paper Award - for Serbian authors only
  (sponsored by Power Electronics Society of Serbia and Institute Nikola Tesla)
- Special Issue of Energies: "Smart Power Electronics – Selected papers from the 21st International Symposium on Power Electronics (Ee 2021)":
  Announcement of the selected papers.

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| 18:30h | | **Social Activities (Virtual Welcome Party)** |

## Saturday, 30 Oct. 2021.

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|---|---|---|---|---|---|---|
| 08:00 - 08:30h | | **REGISTRATION / TESTING & UPLOAD** | | | | |
| 10:00h | **PLENARY Session - KN3** | **KEY-NOTE PAPERS** | | **MS Teams platform** | | |
| | **Chair:** | **Prof. Dražen Dujić, PEL, Swiss Federal Institute of Technology – EPFL, Lausanne, Switzerland** | | | | |
| | **Co-chair:** | **Prof. Vladimir Katić, University of Novi Sad, Faculty of Technical Sciences, Novi Sad, Serbia** | | | | |
| 10:00h | **KN3.1** | **Managing Power Complexity for Extreme Performance: Circuit, Architecture, and Magnetics** | | | | |
| | | Chen | Minjie | Princeton University, Princeton | United States | |
| 10:30h | **KN3.2** | **Component Data - The Key to Unleash the Potential of Design Automation for Power Electronics** | | | | |
| | | Hermanns | Kevin | PE-Systems GmbH, Darmstadt | Germany | |
| 11:00 - 11:15h | | **REFRESHMENT BREAK** | | | | |
| 11:15h | **SESSION -T1.3** | **POWER CONVERTERS AND DEVICES** | | **MS Teams platform** | | |
| | **Chair:** | **Prof. Denis Pelin, University of Osijek, Faculty of Electrical Engineering, Computer Sciences and Information Technologies, Osijek, Croatia** | | | | |
| | **Co-chair:** | **Assist.Prof. Vladimir Popović, University of Novi Sad, Faculty of Technical Sciences, Novi Sad, Serbia** | | | | |
| 11:15h 07834 | **T1.3-1** | **Analysis and Design of Partial-Power Rated Single-Phase Diode Boost Rectifier** | | | | |
| | | Grbovic | Petar | University of Innsbruck, Innsbruck Power Electr. Lab. (i-PEL), Innsbruck | Austria | |
| | | Miletic | Zoran | Austrian Institute of Technology (AIT), Vienna | Austria | |
| | | Lopusina | Igor | University of Innsbruck, Innsbruck Power Electr. Lab. (i-PEL), Innsbruck | Austria | |
| 11:30h 04634 | **T1.3-2** | **Design of a SiC Mosfet 6-Phase Boost Rectifier** | | | | |
| | | Di Nezio | Giulia | Roma Tre University, Roma | Italy | |
| | | di Benedetto | Marco | Roma Tre University, Roma | Italy | |
| | | Lidozzi | Alessandro | Roma Tre University, Roma | Italy | |
| | | Solero | Luca | Roma Tre University, Roma | Italy | |
| 11:45h 05134 | **T1.3-3** | **Braking energy recovery by Modular Multilevel Converters in MVDC Railway Electrification Systems** | | | | |
| | | Strobl | Simon | EPFL, Power Electronics Laboratory, Lausanne | Switzerland | |
| | | Milovanovic | Stefan | EPFL, Power Electronics Laboratory, Lausanne | Switzerland | |
| | | Ladoux | Philippe | University of Toulouse, Laboratory LAPLACE, Toulouse | France | |
| | | Dujic | Drazen | EPFL, Power Electronics Laboratory, Lausanne | Switzerland | |
| 12:00h 06734 | **T1.3-4** | **Increasing Current Loop Performance Using Variable Accuracy Feedback for GaN Inverters** | | | | |
| | | Anuchin | Alecksey | National Research University, Moscow Power Eng. Institute, Moskow | Russian Federation | |
| | | Gulyaeva | Maria | National Research University, Moscow Power Eng. Institute, Moskow | Russian Federation | |
| | | Zharkov | Alexandr | National Research University, Moscow Power Eng. Institute, Moskow | Russian Federation | |
| | | Lashkevich | Maxim | National Research University, Moscow Power Eng. Institute, Moskow | Russian Federation | |
| | | Hao | Chen | China University of Mining & Technology, Xuzhou | China | |
| | | Dianov | Anton | National Research University, Moscow Power Eng. Institute, Moskow | Russian Federation | |
| 12:15h 05834 | **T1.3-5** | **New Three-Level Soft Turn-off T-type NPC Inverter** | | | | |
| | | Penczek | Adam | AGH University of Science and Technology, Krakow | Poland | |
| | | Mondzik | Andrzej | AGH University of Science and Technology, Krakow | Poland | |
| | | Piróg | Stanisław | AGH University of Science and Technology, Krakow | Poland | |
| | | Twaróg | Mateusz | AGH University of Science and Technology, Krakow | Poland | |
| | | Stala | Robert | AGH University of Science and Technology, Krakow | Poland | |
| 12:30h 07134 | **T1.3-6** | **1:1 Resonant Switched Capacitor with Capacitive-based Isolation** | | | | |
| | | Serrano | Diego | Universidad Politécnica de Madrid, Centro de Electrónica Ind., Madrid | Spain | |
| | | Vasić | Miroslav | Universidad Politécnica de Madrid, Centro de Electrónica Ind., Madrid | Spain | |
| 12:45h | | **CLOSING** | | **MS Teams platform** | | |

# Hvala na pažnji!