

**XV International Conference on  
Electromagnetic Disturbances  
EMD'2005**

**PROGRAM**

Białystok, September 21 – 23, 2005

**21 September 2005**

**REGISTRATION OF THE PARTICIPANTS**

9.00 – 10.30

**OPENING**

10.30 -11.00

**Section 1**

11.00 – 13.30

**Sources of electromagnetic disturbances**

**Section chairman - Zdobysław Flisowski**

1. **A. R. De Conti, F. H. Silveira, S. Visacro:**  
CALCULATION OF LIGHTNING ELECTROMAGNETIC FIELDS: A COMPARISON OF DIFFERENT RETURN-STROKE MODELS  
Brazil
2. **K. Aniserowicz:**  
VALIDATION STUDY OF EXPERIMENTAL MODEL OF LIGHTNING STROKE TO ANTENNA MAST  
Poland
3. **M. Gamracki:**  
MULTI-EXPONENTIAL MODEL OF LIGHTNING STROKE CURRENT  
Poland
4. **K. Aniserowicz:**  
NUMERICAL SIMULATION OF LIGHTNING-ASSOCIATED ELECTROMAGNETIC FIELD ABOVE LOSSY GROUND  
Poland
5. **G. Masłowski:**  
IMPLEMENTATION OF THE LIGHTNING ENGINEERING RETURN-STROKE MODELS DURING FULL-WAVE FREQUENCY DOMAIN CALCULATIONS  
Poland
6. **K. Aniserowicz:**  
CURRENTS AND ELECTROMAGNETIC FIELDS OF SELECTED "ENGINEERING" MODELS OF LIGHTNING RETURN STROKE  
Poland
7. **J. Vazquez, A. Lazaro, J. Pleite, A. Barrado:**  
CHANGES OF THE ELECTROMAGNETIC FIELD STRENGTH LEVEL ON URBAN AREA  
Spain
8. **M. B. Pancova:**  
THE LINEAR AND THE BALL LIGHTNING  
Russia
9. **K. Kawamata, S. Minegishi, A. Haga:**  
EXPERIMENTAL EXAMINATION OF FREQUENCY SPECTRA DISTRIBUTION DUE TO MICRO GAP DISCHARGE USING THE 6GHZ EXPERIMENTAL SYSTEM  
Japan
10. **R. Markowska:**  
INFLUENCE OF DISTANCE AND GROUNDING PROPERTIES OF TRANSFORMER FEEDING STATION ON SURGE CURRENTS IN GSM BASE STATION  
Poland

**LUNCH**

13.30 – 14.30

## **Section 2 + 6** (Simultaneously with section 4)

14.30 – 16.00

### **EMD emission and susceptibility Disturbances in electronic equipment**

**Section chairman - Roma Rinkevičienė**

- 1. M. Bittera, V. Smieško, K Kováč:**  
NSA MEASUREMENT INFLUENCE TO RADIATED EMISSION MEASUREMENT UNCERTAINTY  
Slovakia
- 2. K. Maceika:**  
EXTREMELY LOW FREQUENCY ELECTRIC AND MAGNETIC FIELDS INFLUENCE ON HUMANS  
HEALTH  
Lithuania
- 3. M. Olesz:**  
THE INFLUENCE OF SWITCHING IMPULSES ON DEGRADATION OF POLYETHYLENE  
INSULATION  
Poland
- 4. J. M. Wiater, A. W. Sowa:**  
OVERVOLTAGES ON LAN NETWORK IN THE LARGE INDUSTRIAL PLANT  
Poland
- 5. A. Nikołajew:**  
DEFORMATIONS OF THE SIGNAL IN MULTIPLE CORE FIBERS  
Poland
- 6. J. Kołtątaj:**  
PRACTICAL ASPECTS IN INDUSTRIAL CAPACITY SENSOR AND SENSOR SYSTEM DESIGN FOR  
INTERFACE DETECTION IN OIL AND GAS EXTRACTION PLANT  
Poland
- 7. J. Kołtątaj:**  
VERY LOW POWER TELEMETRY SYSTEM FOR LONG-TERM MONITORING OF RC (REINFORCED  
CONCRETE) INDUSTRIAL BUILDING STRUCTURES IN AN ELECTROMAGNETIC STRESSED  
ENVIRONMENT  
Poland

## **Section 4** (Simultaneously with Sections 2, 6 and 3)

14.30 – 16.30

### **EMD in wire and radio communication**

**Section chairman - Giennadij G.Czawka**

- 1. P. Bechet, R. Mitran, S. Miclaus:**  
AN ANALYSIS OF FREQUENCY HOPPING RADIO NETWORKS  
Romania
- 2. G. Czawka:**  
EMD ANALYSIS OF BROADBAND MULTI-CHANNEL RADIOCOMMUNICATION SYSTEMS WITH  
SPATIAL MULTIPLEXING  
Poland
- 3. G. Czawka, M. Sadowski:**  
STRUCTURE AND EMD ANALYSIS OF MULTI-PORT BROADBAND ANTENNA STATION FOR  
IONOSPHERE RESEARCH (HAARP)  
Poland
- 4. M. Garbaruk:**  
COMPUTER SIMULATION OF TIME-DOMAIN AND FREQUENCY CHARACTERISTICS OF  
ULTRAWIDEBAND SIGNALS FOR RADIO SYSTEMS  
Poland

5. **G. Czawka, M. Garbaruk:**  
EMD ANALYSIS OF BROADBAND TRANSMITTING RADIO ANTENNA COMPLEXES USED ULTRAWIDEBAND SIGNALS  
Poland
6. **G. Czawka, M. Sadowski, N. Litwińczuk, M. Garbaruk:**  
EMD COMPUTER SIMULATION AND EXPERIMENTAL INVESTIGATION OF ANTENNA COMPLEX OF VEHICLE RADIOCOMMUNICATION BASE STATION  
Poland
7. **R. V. Pocius:**  
THE IMPACT OF DOWNTILT OF ANTENNAS DIRECTIONAL DIAGRAMS ON THE FORMATION OF MOBILE NETWORK CELLS AND ESTIMATION OF ELECTROMAGNETIC FIELD INTENSITY  
Lithuania
8. **Saber Mohamed Ali:**  
ANALYSIS OF A LINEAR ARRAY ANTENNA FOR COMMUNICATION  
Bahrain
9. **Takano Toshiaki, Sakai Kurt, Nagashima Ikuo, Nakata Hiroyuki, Kaike Hiroaki, Ujigawa Satoshi, Kawamura Youhei, Shimakura Shin:**  
PROPAGATION ANOMALY OF VHF WAVES TRANSMITTED FROM OVERSEA BROADCASTING STATIONS  
Japan

**Section 3** (Simultaneously with section 4)  
16.00 – 18.00

**Measurement and simulation of disturbances**

**Section chairman - Kazimieras Maceika**

1. **Bander J. Al-Qahtani, M. H. Shwehdi:**  
CALCULATION OF LIGHTNING FAILURES RATE LEVEL ON 230KV TRANSMISSION LINES  
Saudi Arabia
3. **J. Hallon, M. Bittera, K. Kováč, I. Szolik:**  
INFLUENCE OF CABLES POSITION UPON REPEATABILITY OF INDUCED VOLTAGES DURING EMC IMMUNITY TESTS OF LARGE SYSTEMS  
Slovakia
4. **A. Jonaitis:**  
MODELLING OF HIGH FREQUENCY EXCITATION SYSTEM FOR POWER SYSTEM STABILITY STUDIES  
Lithuania
5. **K. Sobolewski:**  
COMPARATIVE ANALYSIS OF EXPERIMENTALLY AND NUMERICALLY OBTAINED VALUES OF VOLTAGES INDUCED IN CONDUCTIVE LOOPS BY CLOUD-TO-GROUND LIGHTNING STRIKES  
Poland
6. **R. Markowska:**  
INFLUENCE OF GROUND RESISTIVITY AND DETAILED NUMERICAL MODEL ON THE LEVEL OF LIGHTNING THREAT DURING DIRECT STRIKE INTO A COMMUNICATION TOWER  
Poland
7. **N. G. Sergeeva, V. I. Larkina, B. V. Senin:**  
SATELLITE MEASUREMENTS OF LOW-FREQUENCY EMISSION ABOVE THE LITHOSPHERIC DEEP FAULTS IN THE EURO-ARCTIC REGION  
Russia
8. **S. Staras, T. Burokas:**  
SIMULATION OF TRAVELING-WAVE DEFLECTING SYSTEMS AND DEFLECTION IN TRAVELING-WAVE CATHODE-RAY TUBES  
Lithuania

9. **B. Karaliunas**  
CALCULATION OF CHARACTERISTICS OF THE SINGLE - PHASE COLLECTOR MOTORS  
Lithuania
10. **S. Watanabe, K. Saito, O. Hashimoto**  
UTILIZATION OF THE ELECTROMAGNETIC (EM) ABSORBERS UNDER HIGH POWER IS GROWING  
Japan
11. **F. Tahar Belkacem, S. Khoudiri, M. Djennah**  
FINITE ELEMENT ANALYSIS AND MODELING OF A THIN LAYER UNDER THE EFFECT OF AN  
ELECTROMAGNETIC FIELD  
Algeria

**Banquet**  
19.30 – 22.00

**22 September 2005**

**Section 8**  
9.00 – 11.00

## **EMD standards, testing and education**

**Section chairman - Bernd Jaekel**

1. **J. Bajorek, M. Gamracki:**  
ON THE EXPONENTIAL MODEL OF STANDARD VOLTAGE SURGE  
Poland
2. **M. Gotfryd:**  
EDUCATIONAL MODELLING OF NOISE AND ITS IMPACT ON COMMUNICATIONS CIRCUITS  
Poland
3. **B. Jaekel, A. V. Kohling, H. Krosigk:**  
EMC AND FUNCTIONAL SAFETY - PERFORMANCE CRITERION FS  
Germany
4. **M. Łoboda, Z. Flisowski:**  
STANDARDIZATION OF LIGHTNING PROTECTION AND RELATED SYSTEMS EXACTED AFTER  
ADOPTION OF CENELEC PRINCIPLES  
Poland
5. **S. Musial:**  
METHODS OF VERIFICATION OF THE TEST AREA FOR EMC MEASUREMENT  
Poland
6. **A. W. Sowa:**  
IMPULSE CURRENTS CIRCUITS FOR TESTING THE SURGE PROTECTIVE DEVICES  
Poland
7. **L. Radzevičius, E. Radzevičius:**  
MODERN CONCEPTION AND COMPETENCE OF ELECTRICAL FORENSIC EXAMINATION  
Lithuania
8. **Okafor F.**  
DEVELOPMENT OF RESEARCH CAPACITY IN EMC/EMD TECHNOLOGY IN WESTERN AFRICA  
Nigeria

## Section 7

11.00 – 13.00

# Lightning and overvoltage protection

Section chairman - Silvério Visacro

1. **J. Daunoras, S. Gudžius, A. Morkvėnas, G. Plioplys, J. Baublys:**  
LOW VOLTAGE ARRESTERS EFFICIENCY CONTROL SYSTEM  
Lithuania
2. **S. Gečys, A. Morkvenas, A. Rožanskas, V. Tička:**  
THE WORKING CONDITIONS INVESTIGATION OF OVERVOLTAGES ARRESTERS DURING  
MULTIPLE GROUND FAULT  
Lithuania
3. **D. Krasowski:**  
CONSIDERATIONS ON BASIC PARAMETERS OF LOW VOLTAGE SURGE PROTECTION DEVICES  
AND THEIR APPLICATION PROBLEMS  
Poland
4. **R. Markowska:**  
NUMERICAL ANALYSES OF WAVE PROPERTIES OF A COMMUNICATION TOWER SUBJECTED  
TO LIGHTNING CURRENT  
Poland
5. **C. Mazzetti, F. Fiamingo, Z. Flisowski:**  
CONDITIONS REQUIRED FOR ASSURING EFFICIENT OPERATION OF SURGE PROTECTIVE  
DEVICES INSTALLED IN LOW VOLTAGE SYSTEMS  
Italy, Poland
6. **A. W. Sowa, J. M. Wiater:**  
LIGHTNING PROTECTION OF ALTERNATIVE-CURRENT ELECTRICITY METERS  
Poland

## LUNCH

13.00 – 14.00

## Section 5

14.00 – 15.30

# EMD in power systems (1)

Section chairman - Algimantas NAVICKAS

1. **T. Bartuchowski, D. Spalek:**  
ANALYSIS OF OVERVOLTAGES DURING INDUCTION MOTOR CUT-OFF  
Poland
2. **S. Gečys, S. Gudžius, L. Markevičius, A. Morkvėnas:**  
MAXIMUM ELECTROMAGNETIC POWER OF INDUCTION MOTOR SUPPLYING FROM LIMITED  
POWER SOURCE  
Lithuania
3. **S. Gudžius, L. A. Markevičius, A. Morkvėnas, A. Navickas, R. Stanioniene:**  
INVESTIGATION OF OVERVOLTAGES INFLUENCE TO EQUIPMENT INSULATION RESOURCE  
EXPENDITURE IN INSULATED NEUTRAL NETWORK  
Lithuania
4. **B. Jaekel:**  
INDUCTIVE COUPLING BETWEEN WIRES IN HELICALLY TWISTED POWER CABLES  
Germany

5. **A. Navickas, B. Linkeviciute, A. Morkvenas :**  
TRANSFORMERS FAULTS PREDICTION EFFICIENCY USING FUZZY THEORY  
Lithuania
6. **E. V. Nevardauskas, M. Rauchas :**  
THE INFLUENCE OF WIDE USING OF WIND ENERGETIC IN POWER SYSTEM TO GRID VOLTAGE  
AND FREQUENCY QUALITY  
Lithuania

## **Sightseeing of Białystok and a bonfire**

17.30

## **23 September 2005**

### **Section 5**

9.00 – 10.30

### **EMD in power systems (2)**

**Section chairman - Linas Andronis Markevičius**

7. **M. Pittermann, J. Fořt, P. Bárta:**  
THE COMPARING OF THE DISTORTION PRODUCED BY THE STANDARD ELECTRIC DRIVE AND  
THE DRIVE WITH DOUBLE FED GENERATOR  
Czech Republic
8. **R. Rinkevičiene, A. Poška:**  
HYBRID HIGH VOLTAGE COMMUTATOR WITH SEPARATELY CONTROLLED PHASES  
Lithuania
9. **P. Santarius, J. Gavlas, P. Krejčí, B. Bičovská, R. Velička, R. Turča, P. Vašenka:**  
CHANGES OF POWER QUALITY PARAMETERS IN REGIONAL DISTRIBUTION NETWORKS IN THE  
CZECH REPUBLIC  
Czech Republic
10. **J. M. Wiater:**  
LIGHTNING OVERVOLTAGES PROPAGATION ACROSS HV CURRENT TRANSFORMER  
Poland
11. **J. M. Wiater:**  
MV/LV SUBSTATION HIGH FREQUENCY PATCH MODEL  
Poland
12. **T. Šimkevičius, R. J. Lapè:**  
HARMONICS IN FREQUENCY INVERTER-FED SINGLE-PHASE INDUCTION MOTOR WITH  
ASYMMETRICAL STATOR  
Lithuania

### **Section 9 (Simultaneously with Section 10)**

10.30 – 12.00

## **Grounding, equipotential bonding and shielding techniques**

**Section chairman - Andrzej Sowa**

1. **V. Bahrin:**  
SHIELDING SUPERCONDUCTOR MAGNETICALLY-BASED ENERGY STORING DEVICES  
Romania

2. **N. A. Idris, H. Ahmad, W. R. Wan Abdullah, M. N. Isa :**  
THERMAL IMAGES OF IMPULSE IMPEDANCE TESTS ON LABORATORY MODEL GROUND ELECTRODE  
Malaysia
3. **A. Halim Samad, Wan Norliza Wan Mahdi :**  
A MEASUREMENT METHOD OF SHIELDING EFFECTIVENESS AGAINST LIGHTNING ELECTROMAGNETIC PULSE AT TELECOMMUNICATION STRUCTURE IN TROPICAL REGION  
Malaysia
4. **Selcuk Comlekci:**  
THE PROBLEM OF EM SHIELDING EFFECTIVENESS AND GENETIC SOLUTION  
Turkey
5. **S. Wojtas:**  
EFFECTIVE LENGTH OF LIGHTNING EARTHINGS  
Poland

**Section 10** (Simultaneously with Section 9)  
10.30 – 12.00

**Practical problems of EMD**

**Section chairman - Jerzy Kołtataj**

1. **Bander J. Al-Qahtani, M. H. Shwehdi, J. M. Bakhawain:**  
ELECTROMAGNETIC INTERFERENCE (EMI) PROBLEM WITH BURIED PIPELINES: A PRACTICAL CASE FROM SAUDI ARABIA  
Saudi Arabia
2. **S. Gudžius, L. A. Markevičius, A. Morkvėnas, L. Markevičius:**  
APPLICATION OF TRANSIENT ANALYSIS FOR NETWORK STATE IDENTIFICATION  
Lithuania
3. **J. A. Virbalis, R. Katutis, R. Padegimas :**  
INVESTIGATION OF DISTURBANCES OF ELECTROMAGNETIC FLOW METER  
Lithuania
4. **A. Panyukov, A. Avramenko :**  
FORMING OF THE MAP OF EXPECTED QUANTITY OF LIGHTNING DISCHARGES FOR INCREASING ACCURACY OF THE SINGLE-POINT THUNDERSTORM LOCATION SYSTEM  
Russia

**Closing of the Conference**

12.00 - 12.15

**LUNCH**

12.15 – 13.00