

Nis, 30th September 2006

Reference code: COST-STSM-P18-01934

SCIENTIFIC REPORT
after completion of the Short Term Scientific Mission (STSM)
in the frame of COST P-18

visitor: Marek Szczerbinski, AGH-University of Science and Technology, Department of Electrical Power Engineering, Krakow, Poland

host: Vesna JAVOR, University of Nis, Faculty of Electronic Engineering of Nis, Department of Theoretical Electrical Engineering, Nis, Serbia

Period: September 15th - September 30th , 2006.

The reported Short Term Scientific Mission (**COST-STSM-P18-01934**) was entitled “**Computer simulations and analysis of the LEMP screening effects for some Lightning Protection Systems**”. It was carried out according to the detail work plan (agreed in advance), namely we have done

1. Learning of the host's laboratory and computer simulation possibilities.
2. Analysis of lightning electromagnetic field distribution for cage conductor structures.
3. Analysis of conductive structures, consisting of linear cylindrical segments, in external EM field of time harmonic plane wave of arbitrary direction and frequency (using a computer program package SPAN for the analysis, made by the host).
4. Discussion about standards and regulations in the host's country for the lightning protection with a special discussion of the Standard JUS N.B4.811.
5. Sharing experiences of using different systems for lightning protection.
6. Analysis of lightning protection rod with circular loop in dynamical regime.
7. Preparation (preliminary phase) of publications/articles resulting from the STSM.
8. Preparation (discussion with the host) and writing of the final report (STSM Scientific Report).

Next, the host, Vesna Javor, presented her recent scientific articles:

1. Javor V.: "Calculation of Lightning Electromagnetic Field in Time Domain: A New Return-Stroke Current Model," *Proceedings of papers, 7th International Conference on Applied Electromagnetics PES'05*, pp.123-124, Nis, May 2005.
2. Javor V., Aleksic S.: "Characterization of the Function for Approximating Pulse Quantities," *Proceedings of papers, Energy Forum 2005, June 8th-11th*, Tom 2, pp.22-25, Varna, Bulgaria, June 2005.
3. Javor V., Rancic P. D.: "New Approaches to Modeling of Lightning Electromagnetic Field," *PhD Seminar "Computational Electromagnetics and Technical Applications," August 28th-September 1st, 2006*, Banja Luka, BIH, 2006.
4. Javor V., Rancic} P. D.: "Application of One Suitable Lightning Return-Stroke Current Model," *EMC Europe 2006 International Symposium, September 4th-8th, 2006*, Barcelona, Spain, 2006.
5. Javor V., Rancic} P. D.: "One Model for Calculating the Lightning Generated Electromagnetic Field above Real Ground," *51st Internationales Wissenschaftliches Kolloquium IWK 2006, September 11th-15th, 2006*, Ilmenau, Germany, 2006.
6. Javor V., Rancic P. D.: "Influence of Equivalent Lightning Discharge Channel Height on Electromagnetic Field," *6th International Symposium Nikola Tesla 2006*, Belgrade, November 2006. (accepted)

The host and visitor discussed and agreed the details of presentation of their STSM experiences during WG meeting in Barcelona, 9-10 October 2006 and organisational basis of cooperation in the future.

At the end of the visit, the host and the visitor both agreed that the STSM was successful and very useful for the future collaboration.

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