PhD student Francesco Volpe
Report of first year activity

Tutor: prof.Mario Pagano

Cycle: XXXVII   Year: First

My background

- MSc degree in Electrical Engineering

- Power system (ING-IND-33) \ High voltage laboratory

- PhD start date 01/01/2022

- Scholarship type: MUR PON

- Partner company: Electra Impianti

Research field of interest

The main topic of my research is the health index (HI) methodology.

It is estimation of the physical condition of an apparatus. The HI is carried out as a combination of tests, model and parameters.

The methodology was applied at new generation of insulators(Silicon rubber coated RTV) and for the overhead power lines.

Summary of study activities

- Ad hoc PhD courses / schools

School F. Gasparini, Operational Research, Statistical Data Analysis

- Courses borrowed from MSc curricula

Tecnica e diagnostica di Isolamenti in Alta tensione, identificazione e controllo Ottimo, modellistica dei mercati elettrici

- Conferences / events attended

AEIT International Annual Conference 2022, Rome 03-05 October 2022. I have presented the paper Assessing a Health Index Algorithm for High Voltage Overhead Power Lines.

20th International Conference on Harmonics and Quality Power, ICHQP 2022, Naples 29 May- 1 June,2022

Research activity: Overview

- Problem

Assessing the HI for electrical high voltage components. All transmission system operator are interested in this topic in order to have a better maintenance and optimal replacement time.

- Methodology

Weighted sum of tests, parameters and results of the models.

Products

A. Di Pasquale, M. Pagano, C. Petrarca, F. Volpe,
"Assessing a Health Index Algorithm for High Voltage Overhead Power Lines"
AEIT International Annual Conference 2022, published, 2022

A. Andreotti, A. Di Pasquale, M. Pagano, N. Ravichandran, F. Volpe,
"Analysis of Lightning Transients in 2x25 kV 50 Hz Railway Traction System using EMPT"
AEIT Internation Annual Conference 2022, published, 2002

A. Andreotti, A. Di Pasquale, M. Pagano, N. Ravichandran, F. Volpe
"An Optimal Centralized Control Strategy for Regenerative Braking Energy Flow Exchanges in DC Railway Traction System"
2022 Internation Symposium on Power Electronics, Electrical Drives, Automation and Motion, SPEEDAM, published, 2022

M. Balato, A. Di Pasquale, M. Pagano, C. Petrarca, F. Volpe,
"Evaluation of Electrical Characteristics of Aged RTV-Coated Insulators Removed from Service"
Ready to be submitted