

# Prof. Ir. Surya Hardi, MS., Ph.D.

Dosen Program Studi S1 Teknik Elektro  
Fakultas Teknik  
Universitas Sumatera Utara

✉ [surya.hardi@usu.ac.id](mailto:surya.hardi@usu.ac.id)

🏢 Fakultas Teknik

🌐 [ft.usu.ac.id/id/dosen/surya-hardi](http://ft.usu.ac.id/id/dosen/surya-hardi)

*Ir. Surya Hardi, M.S., Ph.D. dilahirkan di Medan pada tanggal 07 Juni 1959, merupakan seorang dosen di Universitas Sumatera Utara dengan bidang ilmu Teknik Elektro. Beliau menyelesaikan pendidikan terakhirnya pada jenjang S3 di Fakultas Kejuruteraan Sistem Elektrik (Teknik Electro) Program Studi Kejuruteraan Sistem Elektrik Universiti Malaysia Perlis (UniMAP) pada tahun 2006-2015. Penghargaan yang diraih beliau, yaitu Certificate Presenter serta Certificate Presenter.*

---

## Publications

---

2023

Prosiding seminar internasional

### **Modeling of Electric Potential Assessment for Substation Grounding Grid Under Lightning Strikes Using LabVIEW**

SUHERMAN , SURYA HARDI

2022

Jurnal internasional bereputasi

### **The Technique of Voltage Level Time Division Based on Maximum Pulse Width to Reduce Total Harmonic Distortion on Multilevel Transformerless Photovoltaic Inverter (MLTPVI) System**

MUHAMMAD IRWANTO , SURYA HARDI , SUWARNO

2024

Prosiding seminar internasional

### **Parameters as indicators of grounding rod corrosion in substation in port area**

SURYA HARDI

2022

Prosiding seminar internasional

### **Mitigation of soil resistivity using composition of zeolite, NaCl, and charcoal**

SURYA HARDI

2024

Jurnal internasional bereputasi

### **Effects of Load Variation and Fault Resistance on the Operation Time of IDMT Over Current Relay**

INDRA NISJA , SURYA HARDI

2015

Prosiding seminar internasional

### **Accurate Phase to Phase Fault Resistance Calculation Using Two Terminal Data**

SURYA HARDI

2024

Jurnal internasional bereputasi

### **Effects of Load Variation and Fault Resistance on the Operation Time of IDMT Overcurrent Relay**

SURYA HARDI , INDRA NISJA , Muhd Hafizi Idris , Yazhar Yatim , Quah Swee Jhing

---

2021

Prosiding seminar internasional

## **Improved Quality of using Voltage Static Var Compensator and Capacitor Bank on the Transmission Line**

SURYA HARDI

---

2024

Artikel ilmiah

## **Analysis of Soil Types and Grid Configurations on Substation Grounding for Safety Design**

SURYA HARDI

---

2023

Artikel ilmiah

## **Transient characteristic of transmission line and tower footing grounding due to lightning strike**

SURYA HARDI , ROHANA , DECY NATALIANA

---

2024

Artikel ilmiah

## **Induction Motor Performance Under Voltage Sag Types I, II and III: Experimental Study**

SURYA HARDI , AHMAD ARIF , DESMAN JONTO SINAGA , MUHAMMAD DANI SOLIHIN

---

2013

Prosiding seminar internasional

## **Core Loss Characteristics Analysis of Power Transformer Under Different Frequencies Excitation**

SURYA HARDI

---

2022

Prosiding seminar internasional

## **Mitigation of voltage sags in distribution line system using static VAR compensator and static synchronous compensator**

SURYA HARDI , INDRA NISJA , ROHANA

---

2024

Jurnal internasional bereputasi

## **Multi-Stage ANN Model for Optimizing the Configuration of External Lightning Protection and Grounding Systems**

SURYA HARDI , ROHANA , NASARUDDIN , YUWALDI AWAY

---

2021

Prosiding seminar internasional

## **Modeling Of Generator Neutral Grounding Through Distribution Transformer Using Lab View Graphical User Interface**

SURYA HARDI

---

2025

Prosiding seminar internasional

## **Induction Motor Performance Under Voltage Sag Type I, Type II, and Type III: Experimental Study**

SURYA HARDI , AHMAD ARIF , DESMAN JONTO SINAGA , MUHAMMAD DANI SOLIHIN , Muzamir Isa

---

2021

Prosiding seminar internasional

## **Economic Design of Substation Grounding Grid using ETAP Software: A Case Study of 2 x 500 MVA Galang Substation**

SURYA HARDI

---

2023

Prosiding seminar internasional

## **Application Modeling of Substation Grounding Grid Design Using Matlab**

SUHERMAN , SURYA HARDI

---

2024

Prosiding seminar internasional

## **Optimizing Microgrid Efficiency with Battery and Super Capacitor Hybrid Systems**

SURYA HARDI , SUHERMAN , SELAMAT RIADI

---

2022

Jurnal internasional bereputasi

## **The Technique of Voltage Level Time Division Based on Maximum Pulse Width to Reduce Total Harmonic Distortion on Multilevel Transformerless Photovoltaic Inverter (MLTPVI) System**

SURYA HARDI

---

2023

Prosiding seminar internasional

## **Effect of harmonic distortion on distribution feeder losses serving housing load**

SURYA HARDI

---

2022

Prosiding seminar internasional

## **Simulation of induction motor behavior under voltage sags using alternative transient program**

SURYA HARDI

---

2023

Jurnal nasional terakreditasi

## **PENILAIAN KEANDALAN DAN EKONOMIS PENYULANG TEGANGAN MENENGAH DENGAN FAILURE MODE EFFECT ANALYSIS**

MHD FAHMI SYAWALI RIZKI , SURYA HARDI

---

2019

Prosiding seminar internasional

## **Modeling of Substation Grounding Grid Design Using Lab View Graphical User Interface**

SURYA HARDI

---

2023

Prosiding seminar internasional

## **Comparative study of static var compensator and capacitor bank for increasing transmission lines performance**

SURYA HARDI , INDRA NISJA

---

2024

Prosiding seminar internasional

## **Comparative Analysis of The Effective Grounding System on External LPS Modeling in PV Fields**

NASARUDDIN , ROHANA , YUWALDI AWAY , SURYA HARDI

---

2022

Artikel ilmiah

## **Design and Optimization of Unified Power Flow Controller (UPFC) on IEEE 9-Bus System**

SUHERMAN , SURYA HARDI

---

2019

Jurnal internasional

## **Ride Through Testing of Variable Speed Drive Due To Voltage Sag Types (Types I, II and III)**

SURYA HARDI

---

2023

Prosiding seminar internasional

## **Reactive power optimization analysis on static VAR compensator with fast decoupled method**

SURYA HARDI

---

2025

Jurnal internasional bereputasi

## **Techno-economic optimization of hybrid renewable energy systems for household energy management**

SURYA HARDI , FAISAL IRSAN PASARIBU , SUWARNO , AHMAD TAUFIK , ALBERT PANJAITAN

2021

Prosiding seminar internasional

## **Influence of Lightning Characteristics on Back Flashover in Extra High Voltage Transmission Line: A case study**

SURYA HARDI

2023

Artikel ilmiah

## **Design and Optimization of Unified Power Flow Controller (UPFC) based on IEEE 9 Bus System**

SURYA HARDI , SUHERMAN

2019

Prosiding seminar internasional

## **Study on AC Contactor Performance Under Voltage Sags**

SURYA HARDI

2025

Prosiding seminar internasional

## **Analysis of Soil Types and Grid Configurations on Substation Grounding for Safety Design Due to Lightning Strike**

SURYA HARDI , Muhd Hafizi Idris

2025

Prosiding seminar internasional

## **The Influence of Soil Two-Layer Structures on Substation Safety in Lightning Strike Conditions**

SURYA HARDI

2020

Prosiding seminar internasional

## **Influence of Location and Capacity of Distributed Generations on Voltage Sags Mitigation Using Alternative Transient Program**

SURYA HARDI

2023

Prosiding seminar internasional

## **External Lightning Protection System modeling on photovoltaic using ATP Draw**

YUWALDI AWAY , ROHANA , SURYA HARDI , NASARUDDIN

2019

Prosiding seminar internasional

## **Prediction system of carbon monoxide toxic gas monitoring using double moving average method**

SURYA HARDI , FAHMI , SUHERMAN

2023

Jurnal nasional terakreditasi

## **PEMODELAN PERLINDUNGAN SAMBARAN PETIR PADA TRANSFORMATOR DAYA DI GARDU INDUK TEGANGAN TINGGI**

SURYA HARDI

2023

Jurnal internasional

## **Analysis of soil resistivity improvement with variations of bentonite and chemical for grounding of electrical equipment**

SURYA HARDI , MILLI ALFHI SYARI

2022

Artikel ilmiah

## **Application Modeling of Substation Grounding Grid Design Using Matlab**

SURYA HARDI , SUHERMAN

---

2024

Jurnal nasional terakreditasi

## **Electrical Energy Audit of Operation Support Equipment at 200 M W Steam Power Plant**

ROHANA , ARNAWAN HASIBUAN , SURYA HARDI

---

2020

Prosiding seminar internasional

## **Influence of Static VAR Compensator Application for Improving Power Quality in Distribution Lines Supplied Industry**

SURYA HARDI

---

2024

Jurnal internasional bereputasi

## **Multi-Stage ANN Model for Optimizing the Configuration of External Lightning Protection and Grounding Systems**

YUWALDI AWAY , ROHANA , NASARUDDIN , ANDRI NOVANDRI , SURYA HARDI

---

## **Community Services**

---

2024

## **PENGURUS BADAN KEMAKMURAN MASJID AL-IKHLAS KELURAHAN SUKA MAJU KECAMATAN MEDAN JOHOR KOTA MEDAN PERIODE 2024-2029**

DR H SAPARUDDIN SIREGAR SE AK MAG , SURYA HARDI

---

2025

## **PENGURUS BADAN KEMAKMURAN MASJID AL-IKHLAS KELURAHAN SUKA MAJU KECAMATAN MEDAN JOHOR KOTA MEDAN PERIODE 2024-2029**

DR H SAPARUDDIN SIREGAR SE AK MAG , SURYA HARDI

---

2024

## **Susunan Pengurus Badan Kemakmuran Masjid Al-Ikhlas**

FATHIA RAHMADINI , SURYA HARDI

---