



INTISARI

Penelitian ini bertujuan untuk melihat efek *protrusion* / tonjolan pada permukaan kabel lug dan efek variasi jarak antara kabel lug dengan *frame grounding* terhadap distribusi medan listrik yang dihasilkan melalui pendekatan simulasi. Penelitian ini dilakukan sebagai respons terhadap munculnya fenomena *partial discharge* di lapangan. Metodologi yang digunakan meliputi penerapan desain, penerapan simulasi *Finite Element Method* (FEM), dan analisis distribusi medan listrik. Hasil penelitian menunjukkan bahwa efek *protrusion* pada permukaan kabel lug secara signifikan menyebabkan peningkatan medan listrik lokal, sedangkan efek variasi jarak antara kabel lug dengan *frame grounding* berpengaruh signifikan terhadap besarnya intensitas medan listrik maksimum yang dihasilkan. Kesimpulan dari penelitian ini adalah fenomena *partial discharge* yang terjadi di lapangan dapat dipicu oleh peningkatan medan listrik lokal di sekitar kabel lug. Peningkatan ini berawal dari terdapatnya bagian kabel lug yang memiliki ujung dan tepian (yang dapat diilustrasikan dengan *protrusion*) serta variasi jarak yang diberlakukan antara kabel lug terhadap *frame grounding*.

Kata kunci : *protrusion*, medan listrik, *partial discharge*, *Finite Element Method*.



ABSTRACT

This research aims to examine the effect of protrusion on the surface of cable lug and the effect of varying distances between cable lug and the frame grounding on the distribution of electric field generated through simulation approaches. This research is conducted in response to the emergence of partial discharge phenomena in the field. The methodology used includes design implementation, Finite Element Method (FEM) simulation implementation, and analysis of electric field distribution. The research results indicate that the effect of protrusion on the surface of cable lug significantly increases local electric fields, while the effect of varying distances between cable lug and the frame grounding significantly affects the magnitude of the maximum electric field intensity generated. The conclusion of this research is that the partial discharge phenomenon that occurs in the field can be triggered by an increase in local electric field around the cable lug. This increase originates from the presence of cable lug sections with tips and edges (which can be illustrated by protrusion) as well as the varying distances applied between the cable lug and the frame grounding.

Keywords : *protrusion, electric field, partial discharge, finite element method.*