



Contribution ID: 149

Type: **Poster Presentation**

## **Pressure rise calculation due to an internal arc fault in HV metal-enclosed SF<sub>6</sub> GIS**

*Wednesday, 6 July 2016 14:40 (20 minutes)*

High reliability of HV SF<sub>6</sub> switchgear makes an internal arc fault an extremely rare event. However, its occurrence cannot be completely avoided, and therefore, must be considered in the design process. Internal arc testing in SF<sub>6</sub> is not recommended due to its harmful environmental impact, but if necessary, tests should be performed only inside special containers, that will prevent the release of SF<sub>6</sub> into the atmosphere. Having in mind that tests in SF<sub>6</sub> and air are not yet fully comparable, accurate modeling of pressure rise due to internal arc faults is still the main means to evaluate required design parameters of SF<sub>6</sub> switchgear in respect of safety from internal arc faults.

A simulation tool, which calculates the pressure rise due to an internal arc inside a metal-enclosed SF<sub>6</sub> compartment, was developed and used in the design of a new HV GIS. The calculation procedure and obtained results are described and discussed. Validation of the tool was performed using experimental data from SF<sub>6</sub> internal arc tests, dating back several decades ago, when internal arc tests in SF<sub>6</sub> were not questionable as today.

**Primary author:** BEŠLIJA, Dejan (Faculty of Electrical Engineering Sarajevo)

**Co-authors:** GORENC, Dalibor (KONČAR-EVA d.d. Zagreb); Prof. KAPETANOVIĆ, Mirsad (Faculty of Electrical Engineering Sarajevo); DELIĆ, Sead (Faculty of Electrical Engineering Sarajevo)

**Session Classification:** Poster 1-A

**Track Classification:** Plasmas, Discharges, and Electromagnetic Phenomena