

jumps double, as far as we have picked up. Figure 2 shows the ratio of author's country. Except Japanese papers, both north American and European researchers are studying the new type of aging phenomena intensively.

The papers may be classified into the following fields;

- (1) General trend of power devices
- (2) Analysis of the surge propagation
- (3) PD inception condition with very fast rise time and/or short pulse width.
- (4) Space Charge effects
- (5) Multistress aging mechanism
- (6) Insulation coordination

The committee is going to issue a Technical Report of IEE Japan in spring 1999, which may be the first guidelines of inverter surge insulation in Japan. International organizations such as CIGRE, IEC and IEEE also began to investigate the problem. Especially IEC/TC98 started a new working group to survey the state-of-the-art for international standardization. We hope that our report will contribute to the IEC's activities.

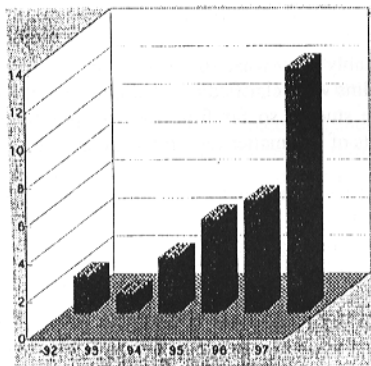


Figure 1 The increase of numbers of papers on inverter surge insulation

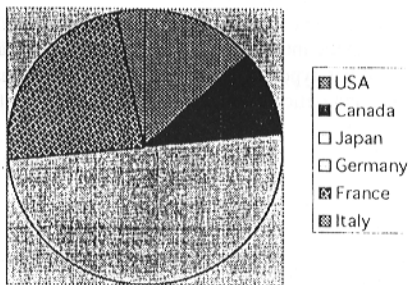


Figure 2 Country distribution of the papers

Standardization or Space Charge Measurement in Dielectrics and Insulating Materials

T. Takada and Y. Tanaka (Musashi Institute of Technology)
Y. Ebinuma (Showa Electric Wire & Cable Co. Ltd.)
K. Fukunaga (Communications Research laboratory)

The purpose of this investigation committee is to review internal space charge measuring methods : pulsed electro acoustic (PEA), laser induced pressure wave propagation (LIPP), and piezo-electric induced pressure wave propagation (PIPWP) methods, which have been widely used to evaluate insulating materials. The number of researchers on this subject has been increasing rapidly in Japan, and a useful guidebook for space charge measurement and calibration has been required in order to compare results.

This committee was established in April, 1997. There are currently 26 members from 8 universities, 6 cable manufacturers, 4 electric manufacturers, 3 electric power companies and 2 research institutes. The 3 years activity will contribute to knowledge of the internal space charge phenomena (a fundamental subject of insulation), and also to current research activities on space charge in Japan at the meetings of the new task force on space charge in CIGRE (SC15TF3).

The main subjects of the investigation are as follows ;

1. The state of the measurement system in each research group
2. Current problems with each method
3. Calibration method and a standard sample for comparing the methods