

# Foreword

In order to complement the Technical Report [1] prepared in the TC 38 WG 42 the authors of this book, who were also members of the Working Group 42, dealt in detail with the problem of ferroresonance oscillations. In this book the most important aspects of the subject are demonstrated, the theory of ferroresonance oscillations is explained and practical examples are described with graphics, tabular summaries and critical equipment parameters. The book shall serve as a guideline to manufacturers of instrument transformers, constructors of substations, operators of high voltage switching facilities and networks. It explains how the frequent problem of ferroresonance oscillations, which leads to damages, can be avoided or be removed efficiently.

The authors are experts in high and medium voltage fields and worked together to find solutions for the problem of ferroresonance oscillations.

*Ruthard Minkner* has industrial experience in high voltage systems and stability problems of non-linear systems. He taught the subjects “high voltage engineering” and “servomechanism” at the University of Applied Science in Burgdorf/Switzerland, and was a guest professor at the State University of Washington (USA). He was convener of several IEC working groups and the IEC awarded him three times the prize “IEC 1906”. *R. Minkner* is responsible for the Chapter 1 and Chapter 2 in this book.

*Joachim Schmid* is R&D manager for instrument transformers, chairman of the Swiss national commission CES TK 38 and convener of several IEC working groups. He supervised diploma works at the University of Applied Science in Burgdorf/Switzerland regarding semi-conventional instrument transformer and is responsible for the Chapter 3.

*Holger Däumling* is manager for customer problems in substations, expert for three phase ferroresonance oscillations in medium and high voltage networks and responsible for the Chapter 4.

*Udo Prucker* is R&D manager of the leading company for SF<sub>6</sub> insulated high voltage instrument transformers for GIS and AIS applications. Besides the field of gaseous insulation his special interest is in simulation of ferroresonance phenomena. *Udo Prucker* was the main author of Chapter 5.

*Reinhold Bräunlich* is CEO of the association: FKH, Fachkommission für Hochspannungsfragen (High Voltage Testing and Engineering Commission), responsible for high voltage tests and other measurement in high voltage substations. The investigation of cases of ferroresonance oscillation belongs to the competences of FKH.

*Martin Hofstetter* is manager in a Swiss utility, and is responsible for design of the high and medium voltage grid of his company. He was engaged in many ferroresonance cases in the high voltage grid.

*Martin Hofstetter* and *Reinhold Bräunlich* were main authors of Chapter 6 and Chapter 7.

*Hans-Werner Schlierf* was manager for the specifications of instrument transformers and substations. He was an expert for failures in substations and has excellent experience in measurement technology. He provided several cases of ferroresonance oscillations and remedial measures. He retired before the finalization of this book.

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