

Rainer Faller

Principal Partner, exida.com



Fields of Competence

Functional Safety of (Programmable) Electronic Systems
Safety Applications in

- Process Industry (Safety PLC, field instruments, furnaces, pipelines, chemical reactors)
- Automotive Industry (automatic steering control, Driver assistance)
- Nuclear Industry (reactor protection system, field instruments)
- Machinery (cable cars, stage machinery)
- Medical Industry (dialysis, ventilator, defibrillator)

Functional Safety methods and techniques

- Requirements management
- Qualitative and quantitative failure analysis
- Safety architecture
- Software safety, partitioning and independence mechanisms
- Safety of data communication
- Quality management – ISO 9000, ISO 17025, EN 45011

Experience Summary

Mr. Faller has over twenty five years of experience and extensive knowledge in the safety and reliability field. He is widely known as the world's top safety and reliability expert. After graduating from Munich University, Mr. Faller began working for MAN Technology where he co-developed a driverless bus for public transportation. In 1985, he joined TÜV Bayern where he obtained the position of chief engineer for safety of computer systems. Several years later, Mr. Faller became a Manager at IQSE, the Institute for Quality and Safety in Electronics. Also during this time, Mr. Faller was named Chairman of the German DIN/DKE committee on "Computers in Safety-Related Applications". In 1998, he became Business Unit Manager of "Automation, Software, and Electronics" at TÜV Product Service. This position provided him with worldwide responsibility. His signature appeared on most of the world's equipment safety certifications. Since 2000, Mr. Faller is the co-founder and Principal Partner for *exida.com*, LLC. Mr. Faller is a member of many different international standardi-

Key Assignments and Projects

- Co-developed an electronically guided bus for public transportation
- Created Programmable Electronic Certification Scheme for TÜV to ensure safety of programmable automation systems.
- Developed and promoted the concept of third-party safety verification
- Developed safety concepts for *exida* customers, and holds patents with them
- Developed safety case tool support
- Developed Software HAZOP tool support

Teaching

Developed and taught courses for TÜV and *exida*, in Europe, USA and Japan.

Affiliations / Standards Committees

- Member and till 2011 chairman of the German DIN/DKE committee on "Computers in Safety-Related Applications"
- Member of IEC 65A MT12+13 "Functional Safety of E/E/PE systems"
- Member of Reactor Safety Commission for Electrotechnical equipment of the German government from Dec. 2008 till Dec. 2010

Publications / Presentation - excerpt

VDI Elektronik im Kraftfahrzeug, 1984,

"Sicherheitskonzept für spurgeführten Bus"

Automatisierungstechnische Praxis, "Sicherheitsnachweis für rechnergestützte Steuerungen", 1988

Publications at different VDI Seminars, 1987 and 1993

Publication BIRA "Safety related fault tolerant computer systems", 1990

Publication MILCOMP, "European Safety Testing, The Role of Static Analysis", first description of safety criticality analysis, 1992

Publication IEE Conference, "TÜV Type Certification of Programmable Electronic Systems", 1993

Publication ACOS Workshop – Advisory Committee on Safety of IEC, "IEC 1508 - View of a European Test and Certification Body", Chicago, 1995

"Probabilistic Instrumented Protective Function Calculation Methodology", Rainer Faller, Johannes Hammerschall, 1995, part of the SHELL MF Report "Instrumented Protective Functions - Calculation Methodology", Luc Korteweg

Publication Dependable Computing for Critical Applications – DCCA-5, 1998

"Proposal for an Interim Solution for the use of non-safety-related intelligent field instruments in Safety Applications in the process industry", 1998

zation committees and was member of the Reactor Safety Commission for Electrotechnical equipment of the German government. He holds various patents on the subject of functional safety and is frequently sought after for speaking engagements and publications based on his unparalleled expertise.

Credentials

Graduated from Technical University of Munich with a "Diplom Ingenieur Univ."

Birth Date, Nationality

23.12.55; German

Languages

German (mother tongue)

English (fluent)

French, Italian, Spanish (school education, simple reading capabilities remained)

DECHEMA yearly training seminars "Micro-processor based safety instrumentation", since 2000 till 2010

SafeComp, invited speech, "Project Experience with IEC 61508 and its Consequences", 2002

Rockwell Automation, Automotive Machine Safety Symposium, 2002

SafeControlTec – Konsequenzen der IEC 61511 / IEC 61508 für die Verfahrenstechnische Praxis, "Verlängerung der Prüfzeiträume – Praktisches Anwendungsbeispiel an einem Batch Reaktor", 2003

IEE conference, London, „Experience in Component Assessment and Certification for Functional Safety“, 2004

TÜV Süd SafeTronic, "Change Management", 2004

Emerson Process Academy, "IEC 61511 - Der global akzeptierte Standard für funktionale Sicherheit in der Prozessindustrie", 2005, 2006

Interkama, "Funktionale Sicherheit von Geräten nach IEC 61508; Einsatz und Erfahrungen", 2005

VDI Elektronik im Kraftfahrzeug, "Flexible safety concepts using the example of a driver assistance system"; Sonja Thissen BMW AG, Rainer Faller, 2005

TÜV Süd SafeTronic, Workshop "Semi-formal Development", 2005

VGB (Association for nuclear and conventional power and heat generation) KELI Konferenz, "Software in elektronischem Serienmaterial für sicherheitsbezogene Anwendungen", 2006

Fachhochschule München, Safe and Flexible Biotechnology, "IEC 61511 - Der global akzeptierte Standard für funktionale Sicherheit in der Prozessindustrie", 2006

Universität Graz, Campus 02, „Sicherheit technischer Systeme“, 2006

Public exida UML Training course, 2007

exida UML Training courses for safety projects at PR-electronics, Foxboro, and public courses, 2007

SafeComp, "Specification of a Software Common Cause Analysis Method", 2007

Honeywell EMEA User Conference, "Keynote - Functional Safety", 2007

University of Freiburg, "What makes RTOS beneficial for safety", 2008

Deutsches Kongresszentrum, "Safe software architectures using base software", 2009

Funktionale Sicherheit für ICs in Airbag Applikationen, HANSER automotive 11.2009, mit Infineon

Novel features of the 2nd Ed. of IEC 61508 VDE Tagung zur IEC 61508, 2009

Functional Safety for ICs in Airbag Applications, Airbag2010, mit Infineon

Vorschlag für Ergänzungen der Qualifizierungsanforderungen an Rechner in Cat A Funktionen, Reaktorsicherheitskommission, 2010



Professional Profile

TÜV Süd SafeTronic, "Common Cause Analysis for Integrated Circuits with On-Chip Redundancy", 2010

Zone & Conduit Approach - ISA 99 Security for Industrial Automation and Control Systems

VDE Tagung zur Funktionalen Sicherheit

IEC 61508, 2011

Separation of (A)SIL Partitions in Embedded Systems, exida Symposium, 2011