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Summary of Recent Activities of PFM Subcommittee, Atomic Energy Research Committee, The Japan Welding Engineering Society

Shinobu Yoshimura

Professor and Vice Dean, School of Engineering, The University of Tokyo (UTokyo)

Chair, PFM Subcommittee

Vice-chair and Secretary, Atomic Energy Research Committee, JWES

Scope of JWES (since 1949)

- The JWES contributes to improve quality and productivity of welding, to conduct sponsored R&D works, and to conduct technical guidance, all in cooperation with manufactures engaged in welding.
- The JWES also contributes to conduct tests on welded products, to train and educate welding engineers and to develop welders, thereby comprehensively contributing to the advancement and extension of welding technologies.

Major Activities of JWES

- Research Activities by 11 Divisions and 8 Research Committees
- Education
- Quality Assurance Activities by Accreditation and Certification
- International Qualification
- Standardization
- Japan Welding Contest
- International Cooperation
- Welding Show

11 Divisions of JWES

- Welding Consumable Division
- Electric Welding Division
- Gas Welding and Cutting Division
- Ships, Offshore and Steel Structures Division
- Mechanical Engineering Division
- Rolling Stocks Division
- Automobiles Division
- Construction Division
- Iron and Steel Division
- Brazing Division
- Solder and Smart Joining Division

8 Research Committees of JWES

- **Atomic Energy Research Committee**
- Special Materials Welding Research Committee
- Chemical Plant Welding Research Committee
- Robotic Welding Research Committee
- Laser Materials and Processing Committee
- Surface Modification Research and Processing Committee
- Welding and Joining Processes Committee
- Committee of Application of NDT Technology for Industrial Fields

Structure and Activities of Atomic Energy Research Committee

Chairman : Dr. Ayao Tsuge (Former President of Japan Federation of Engineering Societies)

Vice-President and Secretary : Prof. S. Yoshimura

- Planning Board of the Committee
- National Conferences on Various Topics of Structures and Materials
- Training Course for Nuclear Structural Engineers
- International Workshop on the Integrity of Nuclear Components (ASINCO)

Structure and Activities of Atomic Energy Research Committee

- Research Subcommittees (mostly sponsored by industries)
  - PFM Subcommittee (1987-Present)
    Chairman : Prof. S. Yoshimura (UTokyo)
    Vice-chair : Prof. Y. Kanto (Ibaraki University)
  - Subcommittee for Structural Problems in Nuclear Engineering (SPN-II)
  - Subcommittee for Fatigue Q & A (FQA)
  - Subcommittee for Diagram of Fatigue Cycle (DFC)
  - Subcommittee for Multi-axial Damage and Fracture (MDF)
  - Subcommittee for International Research Communication & Collaboration

Activities of PFM Subcommittee

Member Institutes :

- UTokyo
- Ibaraki University
- JAEA
- CRIEPI
- JNES (till March 2014)
- JAPEIC
- TEPCO Systems Corp.
- Nuclear Fuel Industries Ltd.
- Institute of Nuclear Safety System, Inc.
- MIZUHO Information and Research Institute, Inc.
- Shikoku Electric Power Company

Main Activities

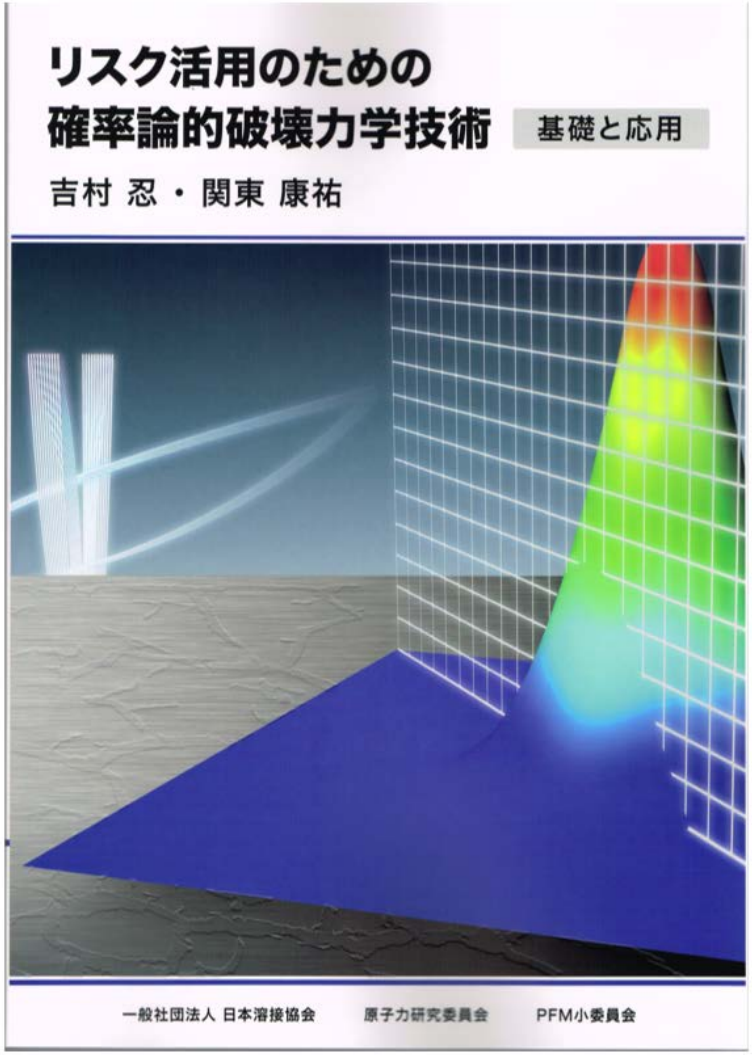
- Various R&D of PFM Modeling and Analyses
- International Round-robin Problems Setting and Analyses (with Korea and Taiwan)
- Presentations at Various International as well as Domestic Conferences such as ASME PVP, ICONE, SMiRT, ASINCO, JSME M&M Div., AESJ CSE Div.
- Survey of International Trends of PFM Technology and Applications
- Dissemination of PFM Technology to Japanese Society through E-publishing

Free e-Publishing of PFM Book

http://www-it.jwes.or.jp/ae/index.jsp

PFM for Risk-Informed Activities
– Fundamentals and Applications –

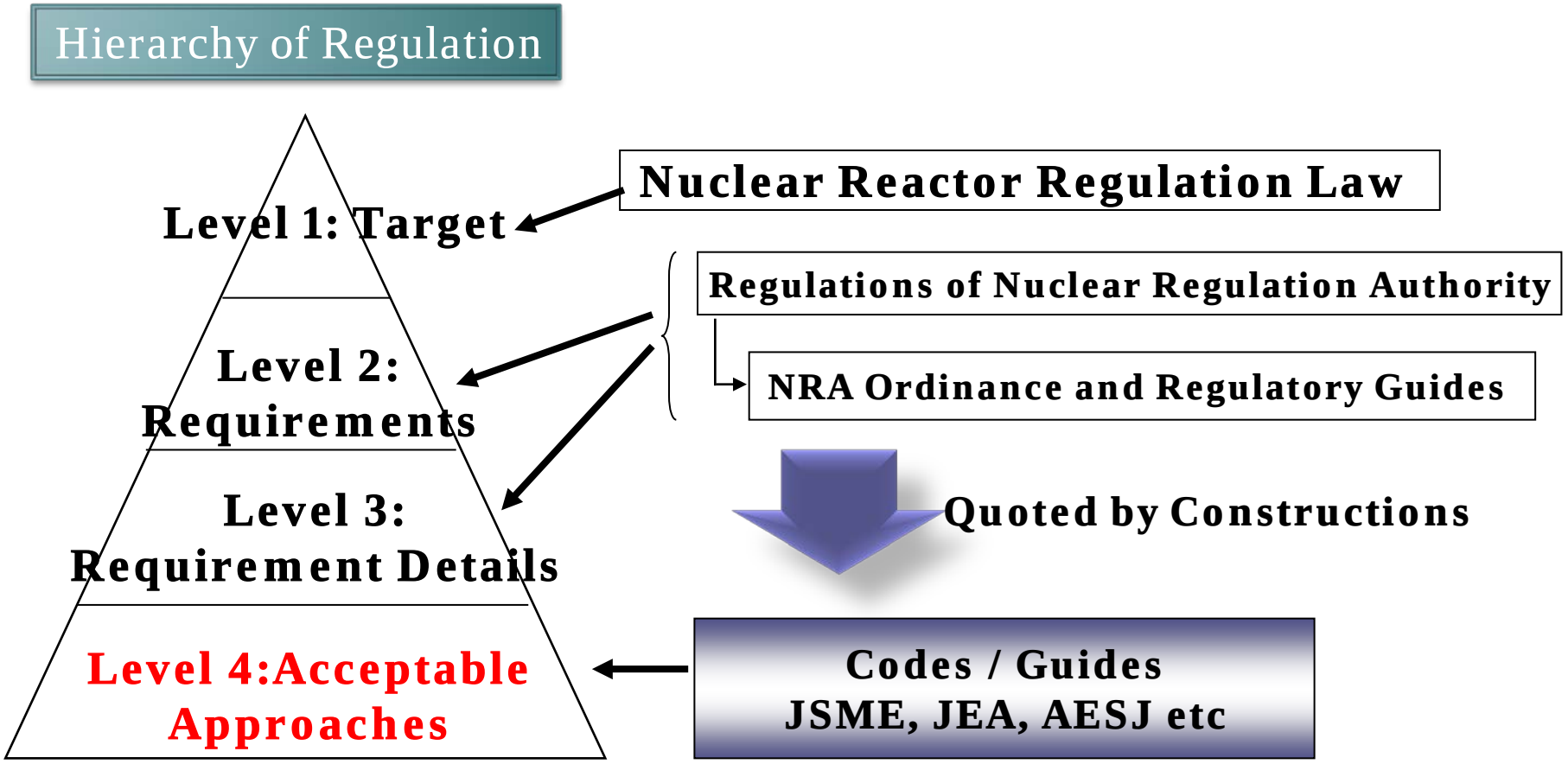
S. Yoshimura and Y. Kanto eds.
PFM Subcommittee, JWES,
Dec. 2012



Contents of the PFM Book

Contents of the PFM Book (cont'd)

Apart from JWES Activities, General Issues : Utilization of Codes / Guides in conjunction with "Functional" Requirements to Nuclear Technology



Japan's Issues Regarding Implementation of PFM to Nuclear Regulation

- PFM technology has been matured already even in Japan as will be presented in this PFM Symposium.
- Some activities to develop Codes and Guides of PFM-based approaches (Level 4) have just initiated recently.
- However there are yet no Risk Target (Level 1), Rsik-based Requirements (Level 2) or Risk-based Requirement Details such as 10CFR.50.61a (Level 3).
- We need to construct the pyramid structure of risk-based regulation in a hurry.