Institution of Mechanical Engineers

STRUCTURAL TECHNOLOGY AND MATERIALS GROUP (STMG)

Mind Map

Validation, Verification & Uncertainty Qualification

Testing Methodologies
MAA
FAA
CAA
ANSI
BSI
HSE
FDA
VVUQ
ASTM
ASME

MATERIALS & INSPECTION

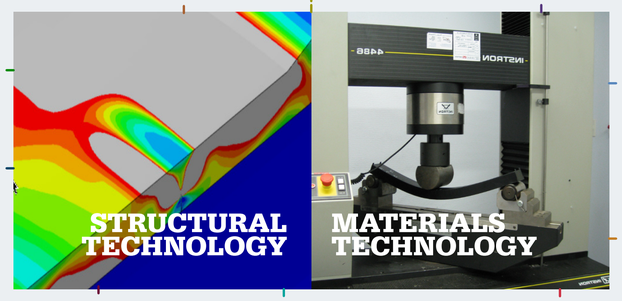
Metal Materials
Non-Metal Materials
Corrosion
Tribology
NDT
Welding

REGULATIONS

ONR
EASA

LEARNING & TRAINING

Conferences
Seminars
Webinars
Competitions
Training
Nuclear Skills/Emerging Technologies
AI Driven & Generative Design Linked with AM
Materials Testing/Materials Research
Standards/Compliance



INDUSTRY SECTORS

Academia
Aerospace
Automobile
Computer Software
Structural Analysis Constancy
Defence
Gas & Oil
Institutions
Manufacturing
Biomedical Engineering
Pressure System
Power & Energy
Railway
Specialist engineering
Offshore Wind

CODES & STANDARDS

ASME
BS
EN
R6
R5
ASTM
DFESTAN
DNV
ISO
AWS
API
INCOSE

ANALYSES

Static & Dynamic
Probabilistic
Numerical
Thermofluids

MEMBERS

ONR
EDF Energy
Rolls-Royce
TWI
Jacob
Frazer Nash
Transformstress
R-PAD Technology
UCL
DePuy Synthes
DE&S
Subsea 7
Kent
Kingston University

EXTERNAL LINKS

NAFEMS
The Welding Institute (TWI)
National Physical Laboratory (NPL)
National Composites Centre (NCCUK)
Manufacturing Technology Centre (MTC)
Institute of Materials, Minerals & Mining (IOM3)
British Institute of Non-Destructive Testing (BINDT)
The UK Forum for Engineering Structural Integrity (FESI)
University of Strathclyde Advanced Forming Research Centre (AFRC)
University of Sheffield Advanced Manufacturing Research Centre (AMRC)
University of Sheffield Nuclear Advanced Manufacturing Research Centre (NAMRC)

DISCIPLINES

Materials & Manufacturing: Sustainable design and materials
Novel manufacturing | Composite | Durability of metallic products
Design & Analysis: Pressure/No-Pressure component design | Fabrication, inspection & evaluation | Probabilistic analysis | Vibration | Impact | Fatigue | Creep & creep-fatigue | Stress | Fracture
Simulation & Modelling: Engineering simulation | Databased modelling/ML/AI
Testing & Evaluation: Welding residual stress testing & Modelling | Test methodologies
Regulation & Compliance: Nuclear regulation

www.imeche.org/industry-sectors/structural-technology-and-materials

Structural Technology and Materials Group (STMG)
As a special interest group within IMechE, the STMG serves as a forum representing all industries and academicals of the structural and materials technologies within the UK, with links across the EU and globally.

Institution of MECHANICAL ENGINEERS