

Exponent®
Engineering & Scientific Consulting

Naman Saklani, Ph.D., P.E.

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Professional Profile

Dr. Saklani specializes in solid and computational mechanics, focusing on the fracture behavior of materials. He has experience in the design, evaluation, and failure analysis of civil structures and mechanical equipment for industries spanning the disciplines of civil, mechanical, and nuclear engineering.

Prior to joining Exponent, Dr. Saklani worked as a Structural Analyst at Holtec International. His responsibility included structural/stress qualification of lifting cranes and ancillaries, storage and transport casks, and underwater storage racks used to manage spent nuclear fuel. He evaluated these components under normal operating, seismic, fatigue, drop, and tornado wind and missile conditions in accordance with ASME-BPV, AISC, ASCE, and ACI codes utilizing the strength of materials and computational mechanics approach.

In the past, Dr. Saklani developed computational constitutive codes for finite element analysis. He added capabilities for fracture, aging viscoelasticity, aleatory uncertainty, and hygrothermal analysis of concrete in a C++ based multiphysics finite element code, MOOSE framework. He utilized these codes to predict the damage initiation and quantification in concrete structures subjected to radiation, high temperature, and low relative humidity.

Academic Credentials & Professional Honors

Ph.D., Civil,Environmental & Sustainable Engineering, Arizona State University, 2020

M.Tech., Structural Engineering, Indian Institute of Technology, Kanpur, 2013

B.Tech., Civil Engineering, Govind Ballbh Pant University, 2010

Licenses and Certifications

Professional Engineer Mechanical, California, #42961

Prior Experience

Structural Analyst, Holtec International, 2020-2023.

Design Engineer, B&S Engineering Consultants Pvt Ltd, 2013-2016.

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Publications

Wei, Z., Falzone, G., Das, S., Saklani, N., Le Pape, Y., Pilon, L. & Sant, G. Restrained shrinkage cracking of cementitious composites containing soft PCM inclusions: A paste (matrix) controlled response, Materials & Design. 132 (2017) 367–374.

Saklani, N., Wei, Z., Spencer B., Giorla A., Rajan S., Sant, G. & Neithalath N. Finite element simulation of restrained shrinkage cracking of cementitious materials: Considering moisture diffusion, aging viscoelasticity, aleatory uncertainty, and the effects of soft/stiff inclusions. Finite Elements in Analysis and Design. 173 (2020) 103390.

Saklani, N., Khaled, B., Spencer B., Rajan S., & Neithalath N. Implementation of Creep-Damage Model for Concrete Fracture in MOOSE. Materials Journal 117.6 (2020) 135-149

Saklani, N., Banwat G., Giorla, A., Spencer B., Rajan S., Sant G. & Neithalath N. Damage development in neutron-irradiated concrete in a test reactor: Hygro-thermal and mechanical simulations. Cement and Concrete Research. 142 (2021), 106349

Presentations

Saklani N. Recent Advances and Innovations in Design of Structures (RAIDS – 2020). Presentation, Department of Civil Engineering Govind Ballabh Pant Institute of Engineering & Technology, Pauri-Garhwal, (Uttarakhand) INDIA, Dec. 2020.

Saklani N. & Neithalath N. Virtual Workshop on Meso-Scale Modelling of (Irradiated) Concrete. Presentaton, ICIC - International Committee on Irradiated Concrete, and project ACES - Towards Improved Assessment of Safety Performance for Long-term Operation of Nuclear Civil Engineering Structures, November 2020.

Project Experience

Developed finite element methods including generation of post processing scripts to assess the structural integrity of components for nuclear power plant operators across the world. Conducted seismic and drop analysis of a fully loaded high-density underwater storage rack. Analyzed storage and transport casks under normal operating conditions.

Peer Reviews

ASCE Journal of Materials in Civil Engineering, Reviewer