



Professor Samar Rula Malek

See:

<http://loop.frontiersin.org/people/245284/overview>

<https://scholar.google.com/citations?user=mHVFXlMAAAAJ&hl=en>

<https://www.usna.edu/MechEngDept/faculty/malek.html>

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Brief Bio:

Samar Malek is a structural engineer with an expertise in structural and computational mechanics, and gridshells. She completed her Ph.D. and S.M. in Structures and Materials at MIT where she was also a lecturer in the Department of Architecture. Dr. Malek is a Marshall-Sherfield Scholar and completed her post-doctorate at the University of Bath Department of Architecture and Civil Engineering. She has practiced as a structural engineer at Thornton Tomasetti, NYC and consulted on gridshell projects for Atelier One, London. Her research interests include computational methods in conceptual structural design, gridshells, deployable shelters and biomimicry in architecture and engineering.

Research Interests:

High-performing Shell Structures; Active Bending and Gridshells; Biomimicry in Architecture and Structural Engineering; Computational Methods and Geometry

Selected Publications:

Samar Malek and R. Ghanem, "Stochastic modeling of complex dynamical systems", Proceedings of the 6th European Conference on Structural Dynamics, 2005

Samar Malek, "A study of the dynamics of shells with boundary layers and a study of the MITC3 shell element", (publisher not listed), 2007

Samar Malek, J. Ochsendorf and T. Wierzbicki, "Failure limits of shallow grid shells: the physics behind the concept of equivalent thickness and numerical validation", Proceedings of the International Association for Bridge and Structural Engineers and the International Association for Shell and Spatial Structures (ABSE-IASS), Symposium 2011

Samar Malek, "The effect of geometry and topology on the mechanics of gridshells", (publisher not listed), 2012-01-01

Samar Malek, T. Wierzbicki and J. Ochsendorf, "The effect of double curvature on the structural capacity of corrugated grid shells", Proceedings of the International Association for Shell and Spatial Structures (IASS) Symposium 2013: Beyond the Limits of Man, 2013-01-01

Samar Malek and C. Williams, "Structural implications of using Cairo tiling and hexagons in gridshells", Proceedings of the International Association for Shell and Spatial Structures (IASS) Symposium 2013: Beyond the Limits of Man, 2013-01-01

S. Adriaenssens, Samar Malek, M. Miki and C. Williams, "Generating smooth curves in 3 dimensions by minimizing higher order strain energy measures", International Journal of Space Structures, 2013-01-01, DOI: 10.1260/0266-3511.28.3-4.119

Samar Malek, Tomasz Wierzbicki and John A. Ochsendorf (MIT), "Buckling of spherical cap gridshells: A numerical and analytical study revisiting the concept of the equivalent continuum", Engineering Structures, Vol. 75, pp 288-298, 2014-09-15, DOI: 10.1016/j.engstruct.2014.05.049