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MEGEN F. MAGINOT, Ph.D.
SENIOR CONSULTANT

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Dr. Megen Maginot is a Senior Consultant in the Metallurgy practice at Engineering Systems Inc. (ESi). Dr. Maginot specializes in developing field testing and sampling protocols, component failure analysis, material fatigue, root cause analysis, in-line-inspections (ILI), metallurgical materials selection, and oil and gas production chemistry. In addition to her industry experience, Dr. Maginot has experience in custom testing design for biomaterial applications.

Dr. Maginot has expertise in oil and gas operations for internal and external corrosion threats and mitigation systems. Notable projects have included the qualification of novel production chemistries, incident investigations, development of integrity plans, design and construction of pigging facilities, the design, construction, validation, and commissioning of field-testing systems, compliance related pipeline in-line inspections (ILI).

Dr. Maginot has demonstrated commitment to the broader scientific community throughout her career. Her research has been published in peer-reviewed scientific journals and presented at prestigious technical conferences. In addition to her research contributions, Dr. Maginot is an active member of the Society of Women Engineers and the Association for Materials Protection and Performance.

Areas of Specialization

Failure Analysis
Oil and Gas Pipelines
Corrosion Engineering
Process Evaluation
Root Cause Analysis
Fracture Characterization
Field Testing Protocols
Integrity Management

Education

Ph.D., Materials Science and Engineering, University of Texas-Arlington, 2014
B.S., Chemical Engineering, Rose-Hulman Institute of Technology, 2010

Certifications

Cathodic Protection Technician/CP2, Association for Materials Protection and Performance, 2024
Latent Cause Analysis, Petroskills, 2014
Relief Valve Selection and Sizing, Pentair, 2015

Professional Affiliations/Honors

Society of Women Engineers

Member

The Association for Materials Protection and Performance

Member

Positions Held

BP America, Inc., Chicago, Illinois

Pipeline Maintenance Engineer, 2022-2024

Conoco Phillips, Inc., Houston, Texas

Optimization Engineer, 2017-2018

Corrosion Engineer, 2015-2017

Field Project Engineer, 2014-2015

University of Texas-Arlington, Arlington, Texas

Graduate Research Assistant, 2010-2014

Graduate Teaching Assistant, 2012-2014

Baylor College of Dentistry, Dallas, Texas

Graduate Research Assistant, Summer 2012

Publications/Presentations

"Amorphous Silicon Oxide, Amorphous Silicon Oxynitride, and Amorphous Silicon Nitride Thin Films and Uses Thereof", V.G. Varanasi, P.B. Aswath, **M. F. Maginot**, and N.V. Lavrik, Patent No. US20210138120A1 (2020)

"Role of hydrogen and nitrogen on the surface chemical structure of bioactive amorphous silicon oxynitride films", V. G. Varanasi, A. Ilyas, **M. F. Velten, M. F.**, A. Shah, W.A. Lanford, and P.B. Aswath, The Journal of Physical Chemistry B, 121(38), 8991-9005 (2017)

"The in vivo role of DMP-1 and serum phosphate on bone mineral composition", **M. Maginot**, S. Lin, Y. Liu, B. Yuan, J. Q. Feng, and P.B. Aswath, Bone, 81, 602-613 (2015)

"Human periosteum cell osteogenic differentiation enhanced by ionic silicon release from porous amorphous silica fibrous scaffolds", T. Odatsu, T. Azimaie, **M. F. Velten**, M. Vu, M. B. Lyles, H. K. Kim, ... & V. G. Varanasi, Journal of Biomedical Materials Research Part A, 103(8), 2797-2806 (2015)

"Chemical Changes in DMP1-null Murine Bone & Silica Based PECVD Coatings for Titanium Implant Osseoapplications", **M. Maginot**, doctoral dissertation presented at U. of Texas-Arlington (2014)

"Combinatorial effect of Si4+, Ca2+, and Mg2+ released from bioactive glasses on osteoblast osteocalcin expression and biomineralization", N. S. Tousi, **M. F. Velten**, T. J. Bishop, K. K. Leong, N. S. Barkhordar, G. W. Marshall, ... and V. G. Varanasi, Materials Science and Engineering: C, 33(5), 2757-2765 (2013)

"PECVD SiOx Accelerates Hydroxyapatite Surface Formation for Enhanced Early Osteogenic Differentiation", **M. Velten,** T. Odatsu, P. B. Aswath, N. Kamiya, V. G. Varanasi, presented at Materials Science and Technology '13 Conference Proceedings 2013

"XANES Analysis of Mineralized Tissue in DMP1 Knockout Model", **M. F. Velten**, P. B. Aswath, P.C. Dechow, J. Q. Feng, presented at the IADR/AADR/CADR General Session, Seattle, Washington 2013

"Combinatorial and Synergistic Influence of Materials on Biological Processes", **M. Velten**, N. Saffarian-Tousi, V. G. Varanasi, presented at Biomaterials Interest Group, Arlington, TX, 2012