Performance-based earthquake engineering has matured over the past twenty years from a conceptual framework into a formal methodology that can enable quantitative assessment of the seismic risks to buildings and infrastructure. Enabled by advanced computational technologies, performance-based methods provide for more transparent design and decision making that takes advantage of the latest research in characterizing earthquake ground motion hazards, simulating structural behavior, and assessing earthquake damage and its consequences. Performance-based approaches are facilitating the design of innovative structures and influencing building code requirements and public policies for earthquake safety. Continued developments to extend performance-based engineering to city-scale simulations provide emerging opportunities to engage urban planners, public officials, and other stakeholders in developing strategies to avoid and mitigate risks and improve resilience to earthquakes and other natural hazards. Examples include new technologies to enable high-resolution earthquake scenario studies and earthquake policy initiatives in San Francisco and Los Angeles.

**Speaker**: Greg Deierlein is the Director of the Blume Earthquake Engineering Center at Stanford University and founding member of the Stanford Urban Resilience Initiative. He is the former Deputy Director of the Pacific Earthquake Engineering Research (PEER) Center and currently co-directs the NSF supported SimCenter of the Natural Hazards Engineering Research Infrastructure (NHERI). Deierlein specializes in the seismic design and behavior of structures, computational simulation of buildings and civil infrastructure, and performance-based engineering. He is a registered professional engineer, member of the US National Academy of Engineering, and active in development of building code standards and policies to promote seismic resilience.

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