

**Session ID:** GRM-4

**Title**

SIMULATION, VALIDATION, AND UTILIZATION OF EARTHQUAKE GROUND MOTIONS FOR ENGINEERING APPLICATIONS

**Convenors**

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**Description**

Simulated earthquake ground motions can be useful in many engineering applications. Stochastic simulations can be used directly in stochastic dynamic analysis of structures. Physics-based simulations can be used to develop prediction equations for ground motion intensity measures when recorded motions are lacking. Both types of simulations can be used to enhance response history analysis of engineered systems or to perform and enhance probabilistic seismic hazard analysis. In recent years, ground motion simulation models have improved significantly to represent real ground motion characteristics and their natural variability accurately. However, for the engineering community to gain confidence in these simulations, they must first be validated against available recorded data from both seismological and engineering perspectives. As a result, validation and utilization of ground motion simulations has also gained special attention in recent years.

This technical session invites presentations that discuss (1) a wide range of simulation methods including physics-based, stochastic, and hybrid approaches, (2) their strengths and shortcomings through available validation approaches including various validation methodologies, and (3) their utilization in various engineering applications. We encourage submission of abstracts on the development of innovative simulation methodologies or modifications to existing simulation models with the goal to improve specific characteristics of ground motions, such as near-fault characteristics or spatial variability. We are also interested in the development or implementation of validation methodologies that identify the strengths and shortcomings of simulations. Finally, any applications of simulated ground motions that strengthens the confidence of the engineering community to utilize simulations are encouraged.

**Invited Speakers**

A. Askan <sup>4</sup>, M. Broccardo <sup>5</sup>, L. Ramirez <sup>6</sup>, M. Causse <sup>7</sup>, C. Smerzini <sup>8</sup>, F. Zareian <sup>9</sup>, J. Baker <sup>10</sup>, M. Hori <sup>11</sup>, F. Petrone <sup>12</sup>, E. Taciroglu <sup>13</sup>

**Affiliations**

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