

SSST-04
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Proposal for an Invited Session of Papers on
“The Science of Modeling”

[Proposal submitted by C. D. Johnson* and Bill Waite**]

The modeling of dynamic systems (processes) typically leads to numerous equations and other mathematical expressions. However, the procedure whereby those mathematical expressions are created has traditionally been more of an “art” than a science. This situation is due in part to the lack of a foundation of broad, scientific principles that underlie all modeling efforts.

The papers in this proposed Invited-Session will be devoted to the common-theme of identifying fundamental, scientific principles that apply to broad classes of dynamic system modeling efforts and upon which one can begin to construct an effective Science of Modeling (a Mathematical Theory of Modeling). The availability of a Science of Modeling will not only advance the scholarly, theoretical aspects of modeling but should also enable more efficient and effective development of dynamic system models in industrial applications.

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