

Design is a complex human activity that requires an understanding of the surrounding environment and a way to reason about that environment and the behavior of devices within that environment. This symposium concentrates on the use and representation of skills of mathematics, physics and engineering towards the design of physical artifacts and processes. The objective of the symposium is to bring together researchers from a diverse set of areas with a common interest in design from physical principles. These areas include, among others, modeling, dynamics, qualitative, temporal, geometric and terminological reasoning, as well as planning, diagnosis, learning, automated deduction, and traditional engineering design. Design provides these researchers a common focus to communicate their ideas, to combine their techniques, and to evaluate their progress.

The symposium aims at creating the appropriate synergy by providing a focused forum for cross-communication. The design community will be served by exposing it to the sophisticated set of reasoning techniques and mathematical tools currently available. The core reasoning communities will be served by providing them with a task which allows them to focus and evaluate their efforts, as well as to provide them with an infusion of new problems, representations and reasoning skills related to design.

The symposium will feature six panels of areas focussed on by the attendees. There will be two keynote addresses from researchers and designers who have influenced the field (and whose addresses will further influence this community, we hope). We have invited researchers involved in a long term research project to contemplate its position, effects, and future. Finally, since all of the attendees are doing research in design from physical principles, we thought that each should actually do some design from physical principles; thus, the final session will focus on a design project to be done during the next three days.

We hope you find this symposium stimulating, informative, and enjoyable.

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