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### **Physicality, Modelling and Making in a Computational Physics Class<sup>1</sup>**

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Computation is deeply interwoven with virtually every aspect of contemporary Physics research practice including design of experiments, creation of theory, simulations as well as collection, analysis and visualization of data. In contrast, computational activities in Physics classrooms have tended to focus on coding, problem-solving and simulation. To bridge this gap between pedagogy and practice, we have developed a series of making activities whereby students create physical artifacts from low-cost materials, collect quantitative data describing their motion, build models to predict their behavior and reconcile experiment and theory. Results from our first two trials in a group and project-based Computational Physics class will be presented, showing how this approach enables students to engage in disciplinary practice. An epistemic model of how computation produces knowledges is used both to create the design and analyze student work. Design and implementation advice for instructors interested in adopting similar techniques will be provided.

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