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Learning Physics Through Computational Modeling

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Computational modeling is a central enterprise in both theoretical and experimental physics but it can also be an excellent means for students in the introductory courses to develop a deeper conceptual understanding of fundamental physics principles. Many instructional benefits are associated with computational modeling, including visualizing 3D phenomena, modeling complex, real-world systems, and reasoning algorithmically. In this talk, I will discuss many of these benefits as well as some of the ongoing research on how students build conceptual understanding from computational models.