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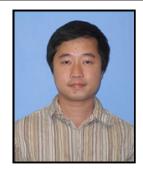| Home | About ▼ | Focus Areas ▼ | Research ▼ | Divisions ▼ | Programs ▼ | News ▼ | Events ▼ | Computing Resources ▼ | Jobs | Contact Us | Log In | LSU ▼ |

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Neural network quantum impurity solver

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Abstract:
Machine learning methods have been applied to various problems in physics over the past few years. Most of the studies are focused on interpreting the data generated by conventional numerical methods or existing databases. An interesting question is whether it is possible to use the machine learning approach, in particular the neural network, for solving many body problems. In this talk, we present a solver for interacting quantum problem of small clusters based on the neural network. We demonstrate the neural network based solver provides quantitatively accurate spectral function. This opens the opportunity of utilizing the neural network approach as an impurity solver for the dynamical mean field theory. The high throughput of the neural network approach makes it particularly useful for the study of disorder systems.

Speaker's Bio:

Ka-Ming Tam is a research assistant professor with the Department of Physics and Astronomy at Louisiana State University. His research interest is condensed matter physics, particularly in computational methods and their applications.Tam's recent research projects are focused on machine learning methods for materials science.