

# Physics Theory Seminar

Wednesday, April 18, 2018 / Pupin Hall Theory Center, 8<sup>th</sup> Floor / 2:00 PM

"Using Deep Learning to help construct a sheaf over the arXiv"

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Significant progress has been made in recent years in Natural Language Processing (NLP), Computer Vision (CV), Signal Processing and Reinforcement Learning (RL) tasks using Deep Learning. At the same time, the volume of scientific publishing has been ever increasing and it is becoming more and more difficult for researchers to keep pace with preprints in a variety of fields in a meaningful way. In this talk, I will highlight some efforts at Pacific Northwest National Laboratory (PNNL) in applying Deep Learning to aid scientific discovery in chemistry, computer science, and physics. I will then describe an emerging effort at PNNL to enhance topic modeling of scientific publications to help detect interesting scientific advances based on an author's current interests or work. Methods of computer semantic understanding of technical publications would be developed using applications of linear algebra, sheaf theory, and deep learning.