Beitrag ID: **2** Typ: **Talk Main Workshop**

Machine Learning Techniques Used To Determine Accurate Binding Energies

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Machine Learning has become a powerful tool in science. Various machine learning approaches including Neural Networks, Support Vector Machines, Gaussian Process Regression, and Ensemble of Trees have been used to either model binding energies directly or to improve binding energy predictions from existing models. This talk will discuss the successes, benefits, and disadvantages of various approaches. Rules will be proposed with the goal of helping to advance the applicability of Machine Learning based binding energy models. Additionally, a composite model called the Four Model Tree Ensemble will be discussed which fits the Atomic Mass Evaluation 2020 data with a standard deviation of 76 keV and an independent compilation including 33 more recent measurements with a standard deviation of 376 keV. A discussion of extrapolations approaching the neutron dripline will also be included.

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