



Physics Department seminar
DIPARTIMENTO DI FISICA, VIA CELORIA 16, MILANO

Aula A in presence and streaming

<https://fisica-unimi.zoom.us/j/91204025852?pwd=cFE3WkQ1cG9Nci9aeWFqWnFyNU45Zz09>

27 Giugno 2022– 14:30

ALESSANDRO LOVATO

Argonne National Laboratory (USA)

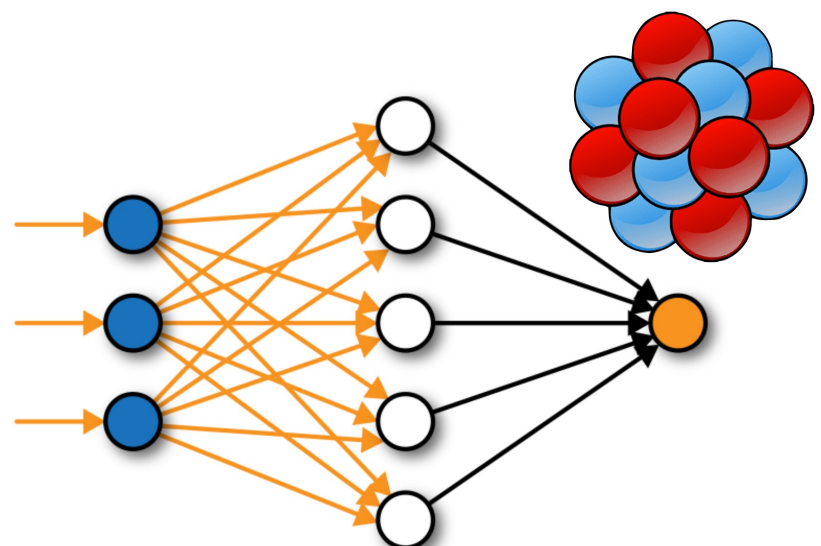
INFN - TIFPA

Neural-network solutions to the many-body problem

Artificial neural networks have proven to be a flexible tool to compactly represent quantum many-body states in condensed matter, chemistry, and nuclear physics problems, where non-perturbative interactions are prominent. I will initially illustrate a simple neural-network quantum state ansatz suitable to solve the quantum harmonic oscillator problem.

I will then introduce neural-network architectures employed to solve different quantum many-body systems, both in real space and occupation-number formalism.

Finally, I will present a neural-network ansatz that is specifically designed to model the ground-state wave function of atomic nuclei and infinite neutron matter.



$$H|\Psi\rangle = E|\Psi\rangle$$

Students are cordially invited – Contact silvia.leoni@mi.infn.it