

ELPH seminar

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日時： 10月12日（水） 15:00～16:30

場所： 電子光理学研究センター三神峯ホール

題目： Towards the nuclear shell model

[Abstract]

The idea that quantal bound many-body systems (atoms and nuclei) should be structured as shells around a centre of mass goes back to the Bohr atom of 1913, where Niels Bohr basically assumed such a structure for the hydrogen atom. It seemed appropriate for that system, given that the proton is 1800 times heavier than the electron, and so the electron would orbit the proton. That idea was easily extended to atoms for the same reason: the nucleus provided a fixed centre of mass about which the electrons would orbit. And the plethora of atomic spectra, available since the first atomic spectroscopists began measuring spectra in the 1850s, supported such an approximation. But what then for nuclei? Could the idea be extended to the nucleus, where no such fixed centre exists? This talk, which is largely a review of the historical development, will point to the directions physicists have taken towards the nuclear shell model, and the successes it continues to enjoy. I will also cover its problems, as there is one thing we may have forgotten: it is still a model.

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