

En route to electronic correlations



density functional theory

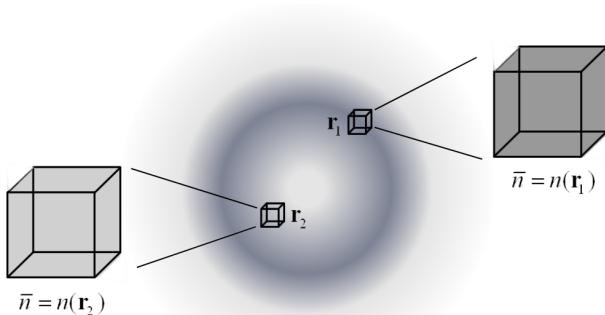
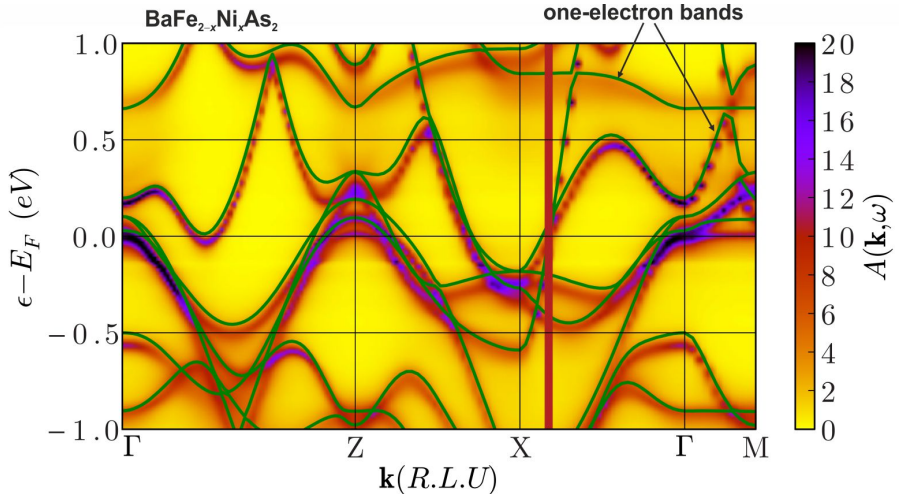


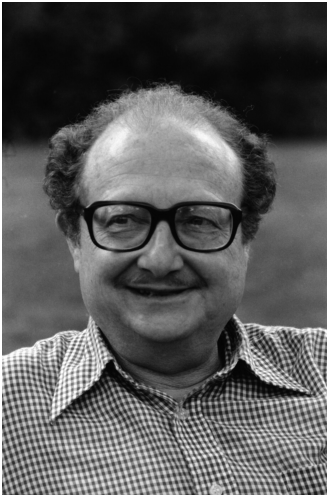
Image credit:
C. Ullrich, Time-dependent DFT



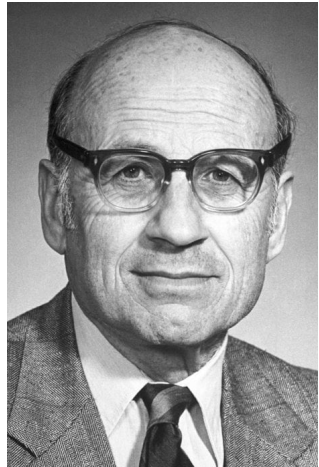


$A(\mathbf{k}, \omega)$ is known as Bloch spectral function

Hohenberg-Kohn theorem (1964)

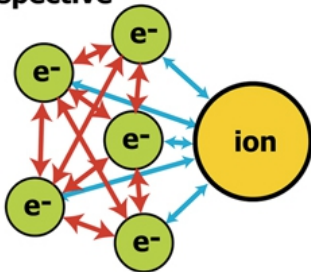


Pierre Hohenberg
1934–2017



Walter Kohn
1923–2016
Nobel prize in chemistry 1998

**Many-Body
Perspective**



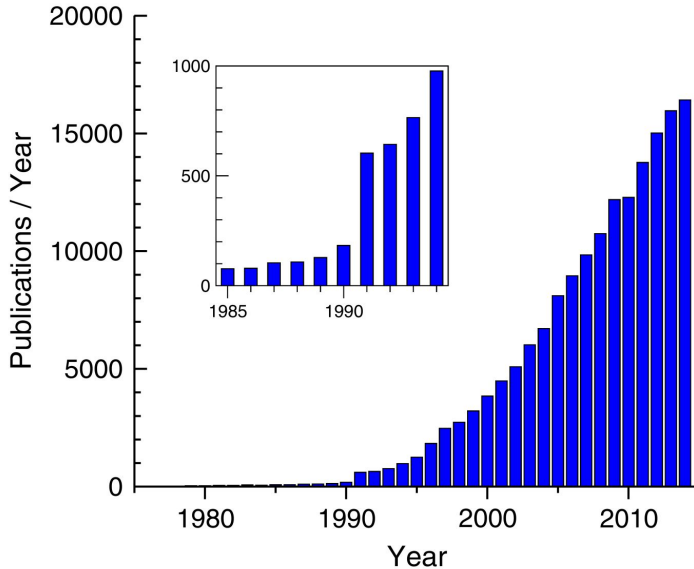
**DFT
Perspective**



**electron
density**

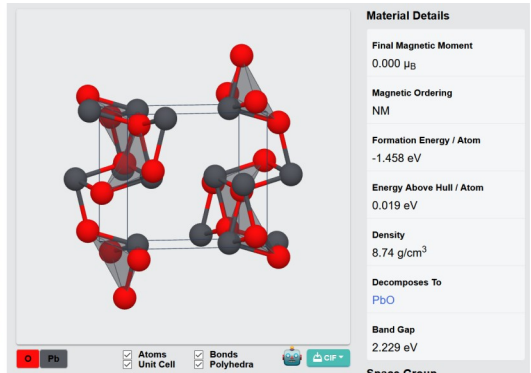


DFT = density functional theory





<https://materialsproject.org>



Collection of band structures
obtained by high-throughput **DFT calculations**

Myriad of DFT functionals





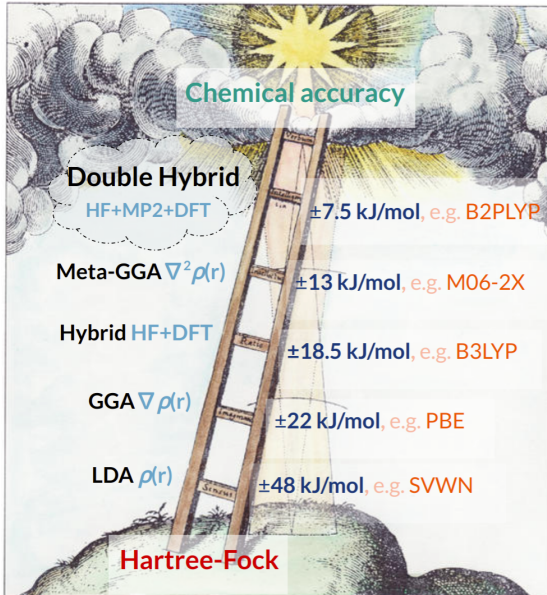


Image credit: Keiran Rowell (fair use)