

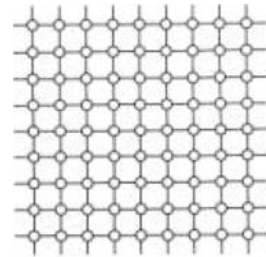
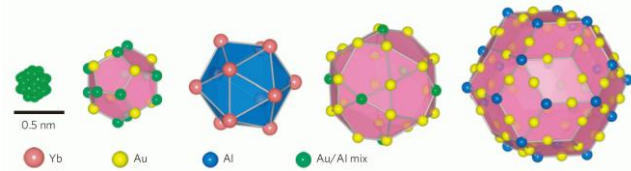
DMFT study of the local correlation effects in quasi-periodic system

Tokyo Tech N. Takemori and A. Koga

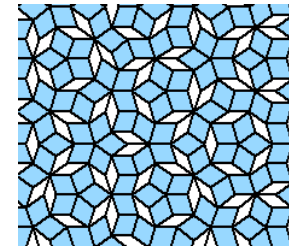
$\text{Au}_{51}\text{Al}_{34}\text{Yb}_{15}$: quasicrystal

► Quantum criticality:

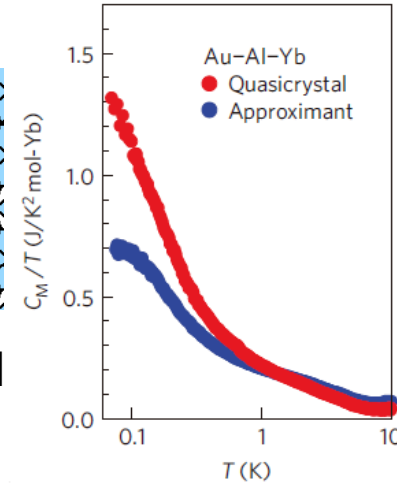
$\text{Yb}^{2+} \sim \text{Yb}^{3+}$



Approximant:
regular crystal



Quasicrystal



K. Deguchi, *et al.*,
Nmat (2012)

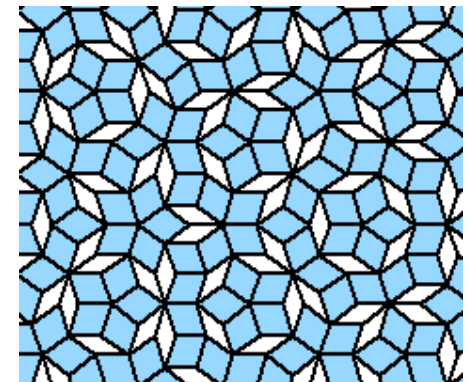
Correlation effect in quasi-periodic system

► Quasiperiodicity

- 2D Penrose lattice

► Local correlation effect

- Real-space DMFT+CTQMC
- Hubbard model



DMFT study of the local correlation effects in quasi-periodic system

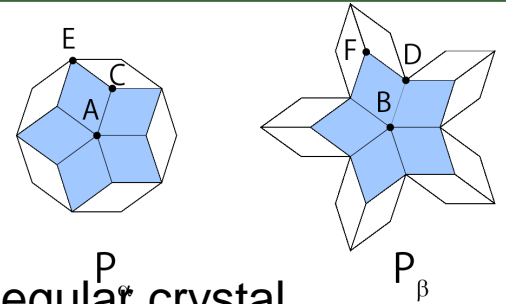
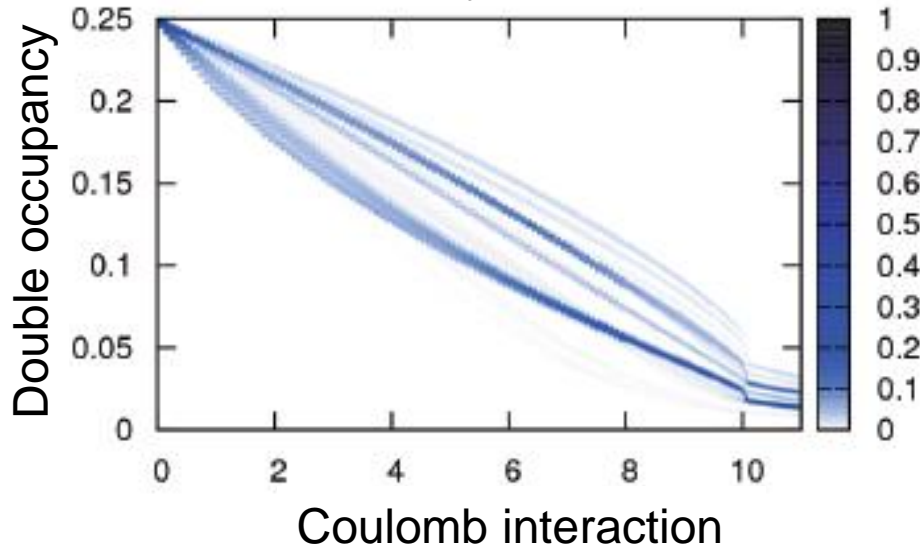
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Mott transition in quasi-periodic system

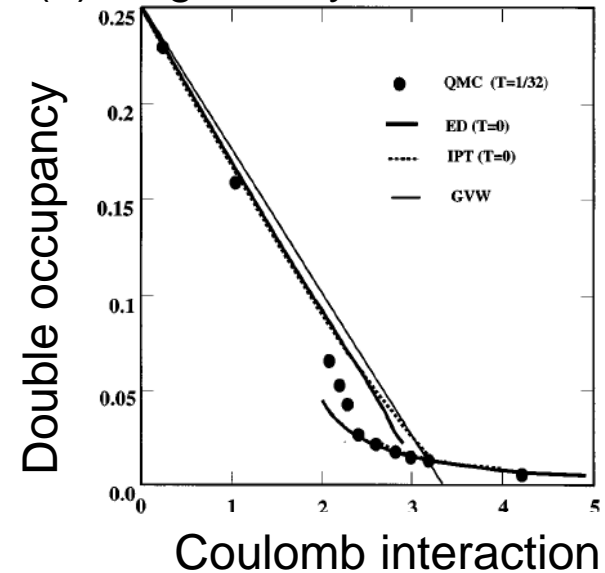
◆ Double occupancy

Single Mott transition point

(a) Quasi-periodic system



(b) Regular crystal



Geometrical structure and correlation length

Local Electron Correlations in a Two-dimensional Hubbard Model on the Penrose Lattice: appears soon on arXiv and JPSJ