Quantic. Papers

Outline.

Title ?

Introduction :-

- FQHE in contexts outside "isotropic" LL's subject of much recent interest
  - Haldane's metric, FCI's.
- Here we introduce a family of models that facilitates controlled numerical study of the FQHE outside LL's.
- Which can be exp. realized.
  - cold atoms have already realized Hofstadter,

has been found.

- FQHE in flat band systems far removed from LL's.
- proposed that B.G. is the key metric that determines how suitable a host is.
- Tests on this - difficult
  - Chern bands (Jackson et al)
  - too many parameters.

- On the other,
  Mafstadius - a few.
  - B.C is controlled.
  - lack of variational freedom, role of Q.H unclear.
- subject to the criticism.
- really exploring / reflection of fact that as $l \to \infty$, the FQHE gets more stable.

- Here, we introduce a family of models.
  - $l \to \infty$, $tr \to LL$ tr.

Paper:

Arbitrary lattice model in High B
↳ Generic Behavior → LL's. up to metric
↳ regim of validity.

Special behavior. - family of models.
- example of lattice quantic.
- region of validity → relate to Starting from. t-B parameters.

- Peierls substitution - justification of $p \to p - \frac{eA}{c}$ for t-D models.
-

Digression:-

$$\frac{p^2}{2m} + V(\vec{r}).$$

$$p \to p - \frac{eA}{c}$$

Peierls

$$t_{ij} \to t_{ij}\, e^{i\alpha \int_i^j A \cdot dr}$$

$$H(k) \sim \frac{k^2}{2m} + \frac{k^4}{-} \cdots$$

$$k \to k - \frac{eA}{c}$$

- Introduce family of models.
- Analyze Quartic (general).

$$(g_{ij}\, k_i\, k_j)\ (g'_{ij}\, k_i\, k_j).$$

- Analyze $p_x^4 + p_y^4 \,/\, p_x^2 + p_y^4$.