**Commensurate and incommensurate SDW and the supercon-
ducting dome in heavy electron systems**[1] PEDRO SCHLOTTMANN, Florida
State University — A nested Fermi surface together with interactions between the
carriers may give rise to itinerant AF. We consider an electron and a hole pocket,
separated by a wave vector $\mathbf{Q}$, and Fermi momenta k_{F1} and k_{F2}, respectively. The
order is gradually suppressed by increasing the mismatch of the Fermi momenta and
a QCP is obtained as $T_N \to 0$. If $\mathbf{Q} = \mathbf{G}/2$ (Umklapp), pairs of electrons can be
transferred between the pockets. This process may lead to superconductivity and
we investigate the conditions for a superconducting dome above the QCP [1]. If
$\mathbf{Q} \neq \mathbf{G}/2$ eight phases need to be considered: commensurate and incommensurate
SDW and CDW and four superconductivity phases, two of them with space mod-
ulated order parameter of the FFLO type with wave number $|\mathbf{Q} - \mathbf{G}/2|$. The RG
equations are studied and a phase diagram with re-entrant SDW is obtained [2].

[1] P. Schlottmann, Phys. Rev. B **89**, 014511 (2014).
[2] P. Schlottmann, Phys. Rev. B **92**, 045115 (2015).

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