Metal-SDW phase transition in $3 - \epsilon$ **dimensions** SHOUVIK SUR,
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tute for Theoretical Physics — The quantum phase transition associated with a
spin density wave (SDW) instability in two dimensional metals is relevant to various
strongly correlated electron systems including high-T_c superconductors. However,
the critical point associated with the phase transition has remained largely inac-
cessible due to the absence of a small parameter. In this work we use the recently
developed dimensional regularization scheme, where the co-dimension of a Fermi
surface is extended to general values while its dimension is held fixed, to perturba-
tively access the quantum critical point in $3 - \epsilon$ space dimensions. We derive the
beta functions and compute the critical exponents to the one loop order.

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