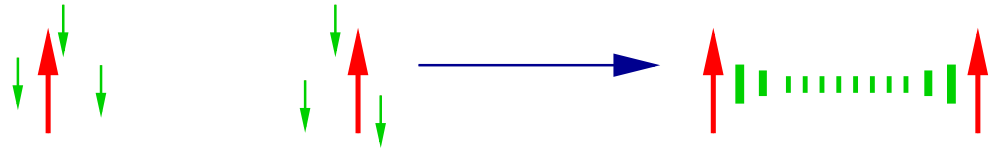


Carrier mediated RKKY interaction between Mn impurities

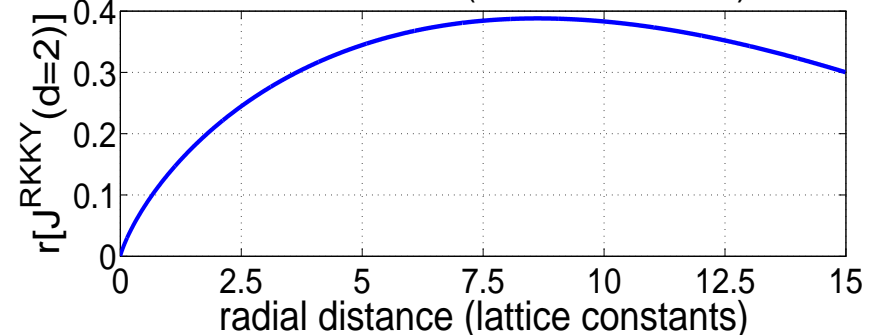
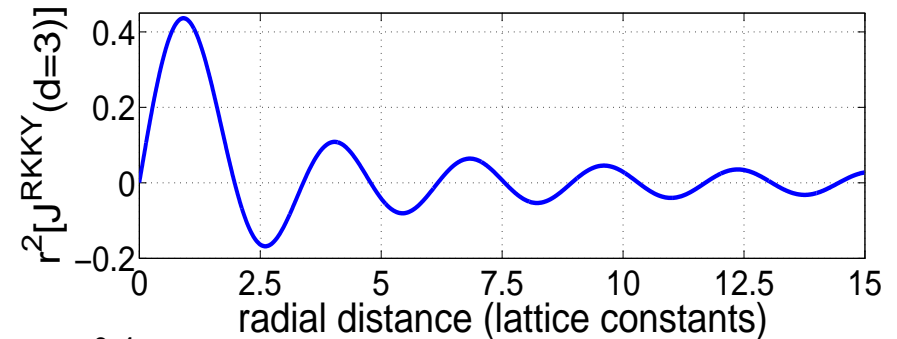
- We assume a carrier-mediated **RKKY** form for the effective interaction between **Mn** dopants.



- **Collisional broadening** is included via an exponential suppression $e^{-r/l}$ where l is the carrier mean free path

- The length scale of the oscillations in J^{RKKY} is set by $1/k_F$ where $k_F^{\text{3D}} = \left(\frac{3}{2}\pi^2 n_c\right)^{1/3}$ for **d=3** and $k_F^{\text{2D}} = (\pi n_c)^{1/2}$ for **d=2**; n_c is the carrier density of the spin-3/2 holes

(T=0) RKKY curves for (d=3) and (d=2)



- Typically, $k_F^{\text{3D}} \gg k_F^{\text{2D}}$; hence, RKKY oscillations don't play a role in **d=2 DMS** systems