# Radiative decays of D–mesons

**Paul Singer**

TECHNION - Israel Inst. of Technology
Department of Physics

May 25, 1998

**Abstract**

The short–distance (SD) contribution due to the $c \longrightarrow u + \gamma$ magnetic penguin as well as the long–distance (LD) contributions are considered in an analysis of the $D \longrightarrow V + \gamma$ decays. Except for special circumstances which are pointed out, the LD effects are dominant. Using the factorization scheme for the nonleptonic $D \longrightarrow VV_0$ weak amplitudes and vector meson dominance for the $V_0 \longrightarrow \gamma$ transition we classify all diagrams which arise in $D \longrightarrow V + \gamma$ decays. The matrix elements are calculated with the help of the hybrid model which combines heavy quark effective theory and the chiral Lagrangian. We present the expected range of the branching ratios for nine Cabibbo–allowed and Cabibbo–suppressed $D \longrightarrow V + \gamma$ transitions, the most frequent ones being a few times $10^{-4}$.