# GRAIN GROWTH, OPTICAL POLARISATION AND EXTINCTION IN INTERSTELLAR CLOUDS

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Increases in the wavelength of maximum polarisation and the ratio of total to selective extinction are generally assumed to be the result of grain growth in interstellar clouds (McMillan, 1978; Whittet and Blades, 1980; Clayton and Mathis, 1988). Using a grain model in which the interstellar extinction is explained by amorphous carbon (a-C) and hydrogenated amorphous carbon (a-C:H) mantles on silicate cores (Duley, 1987; Jones, Duley and Williams, 1987; Duley, Jones and Williams, 1988) we have theoretically studied the effects of these absorbing carbonaceous mantles on the polarising properties of large (500 Å - 2500 Å radius) silicate grains. We adopt the polarisation model of Mathis (1986) and show that carbon-coated silicate grains can explain the relationship between the wavelength of maximum polarisation ($\lambda_{max}$) and R observed toward dark clouds.

References

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