Probing the Role of Carbon in the Interstellar Ultraviolet Extinction

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We model the ultraviolet/optical extinction curves between 0.3 to 8 μm^{-1} of 16 Galactic sight lines which exhibit variable strengths and widths of the 2175Å bump, in terms of standard silicate/graphite interstellar grain model. We find that the C abundance required to be locked up in dust correlates with the strength of the 2175Å bump, while the abundance of Si depleted in dust shows no correlation with the 2175Å bump. This supports graphite or PAHs as the possible carrier of the 2175Å bump. We also see a weak correlation between the C depletion and $1/R_V$ suggesting the far-UV extinction is more likely produced by small carbon dust.