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On the Existence of Silicon Nano-Dust near the Sun

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We study the sublimation sequence of silicate dust in the inner solar system and show that resulting material to survive at small distances from the sun is metal oxides while silicon sublimates at moderate temperatures already. That agrees with the understanding that dust sublimation happens gradually and not at a well defined distance from the sun. From consideration of the laboratory studies that show the generation of Si nanocrystals we conclude that it is not possible to generate Si nanocrystals near the sun nor do most other conditions in space resemble the conditions of these laboratory studies. We conclude that it is not reasonable to suggest the presence of Si nanoparticles in the vicinity of the sun. Aside from these considerations of the material sublimation we discuss models of the collisional fragmentation, in-situ measurements, and broadband infrared coronal observations, which all contradict the claim that a large accumulation of nano-sized grains exists in the vicinity of the sun.