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## Experimental evidence for extremely high polarization of fluffy Mg-Silicate aggregates

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We will present measurements of three scattering matrix elements as functions of the scattering angle, namely  $F_{11}(\theta)$ ,  $-F_{12}(\theta)/F_{11}(\theta)$ , and  $F_{22}(\theta)/F_{11}(\theta)$ , at a wavelength of 632.8 nm, for a sample of fluffy aggregates in random orientations. The aggregates are composed of coagulated magnesiosilicate grains. The (monomer) grains have diameters of the order of a few tens of nanometers. Most striking about the measured results is the extremely high degree of linear polarization for incident unpolarized light  $-F_{12}(\theta)/F_{11}(\theta)$ , with a maximum of about 80%. This value is much higher than the values between 10% and 20% typical for micron-sized irregular compact silicate particles. In contrast, the phase function  $F_{11}(\theta)$  shows a behavior that is very similar to the behavior of micron-sized irregular compact particles. For the  $F_{22}(\theta)/F_{11}(\theta)$  functions we see again that the fluffy aggregates show a behavior that lies in a different domain (minimum about 80%) than the irregular compact particles (minima typically around about 30%).