

THE CIRUMSOLAR MOTION OF DUST PARTICLES AT THE STAGE OF INCREASING
SOLAR LUMINOSITY

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Analysis of motion of dust particles around the Sun under the combined influences of gravitational attraction, radiation pressure and Poynting-Robertson effect shows that at the stage of increasing solar luminosity (Hayashi stage) the particles spiraled away from the Sun, the smaller the faster. This effect could manifest itself near the inner edge of the gas-dust protoplanetary nebula in the zone penetrated by solar radiation. If silicate particles were more fragmented at collision than iron ones (Orowan, 1969), then the above effect could produce a composition fractionation because of a more rapid recession from the Sun of silicate particles as compared to iron ones. This effect can explain the abundance of iron in Mercury.