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Geometrical design of self-phoretic colloids[1] AMIR NOURHANI, Penn State University, PAUL E. LAMMERT, Phys. Dept., Penn State University — Within a unified formalism we study the generic properties of self-phoretic particles for source-or-sink (such as self-diffusiophoresis and self-thermophoresis) and sink-and-source (such as self-electrophoresis) flux distribution across a continuous range of geometries from disk-like to sphere to rod-like shapes. We obtain new insights into the performance of self-phoretic particles as a function of the distribution of surface flux and their shape. Surprisingly, upon varying the geometry between the sphere and rod-like shape, the velocity is not simply an interpolation, but has a nonmonotonic dependent on particle geometry.

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