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**Modeling Spiral Galaxy Luminosity Profiles** JORDAN ROZUM, SHANE LARSON, Utah State University, MATT GARLOCK, BRADLEY CARROLL, Weber State University — The distribution of spiral and bar galaxy inclination angles is expected to be uniform. However, analysis of several major galaxy catalogs shows this is not the case; galaxies oriented near edge-on are significantly more common in these catalogs. In an attempt to explain this discrepancy, we have developed a galaxy simulation code to compute the appearance of a spiral type galaxy as a function of its morphological parameters. We examine the dependence of observed brightness upon inclination angle by using smooth luminous mass density and interstellar medium (ISM) density distributions. The luminous mass component is integrated along a particular line of sight, thus producing a mass distribution, from which a surface luminosity profile is derived. The ISM component is integrated alongside the luminous mass component to account for light extinction. If the dependence of the total surface brightness on inclination strongly corresponds to the observed distribution of inclination angles, we can attribute much of the discrepancy to a geometrical selection effect.

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