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Pulling helices inside bacteria: imperfect helices and rings ANDREW RUTENBERG, Dalhousie University, JUN ALLARD, University of British Columbia — We study steady-state configurations of intrinsically-straight elastic filaments constrained within rod-shaped bacteria that have applied forces distributed along their length. Perfect steady-state helices result from axial or azimuthal forces applied at filament ends, however azimuthal forces are required for the small pitches observed for MreB filaments within bacteria. Helix-like configurations can result from distributed forces, including co-existence between rings and imperfect helices. Levels of expression and/or bundling of the polymeric protein could mediate this co-existence.

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