

# Kinematics and Composition of the Galactic Bulge

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I report on the final results of the Bulge Radial Velocity Assay (BRAVA) survey; all data from BRAVA are now in the public domain.

BRAVA measured radial velocities of 9,500 M giants in the region  $-3^\circ < b < -8^\circ$  and  $-10^\circ < l < +10^\circ$  to map the Milky Way bulge rotation curve as a function of Galactic latitude. The bulge was found to exhibit “cylindrical” rotation that is characteristic of a bar, and the kinematics are best modeled by a rapidly rotating bar. The Shen  $N$ -body model used to fit the data also has an  $X$ -shaped bulge component. The Milky Way is comparable to NGC 4565 on the Binney plot of  $v_{\text{rot}}/\sigma$  vs ellipticity. I also report on recent studies of bulge composition that show the bulge to be  $\alpha$  enhanced over its entire volume. The bulge appears to have no iron abundance gradient within the central 400 pc. I also present new results on heavy elements in bulge giants, including a newly discovered, remarkable Eu enhanced giant. I will also present a discussion of a future survey, the Blanco DECam bulge Survey, BDBS- an imaging survey to obtain multicolor optical imagery with the Blanco 4m telescope, spanning the entire bulge.