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The deceleration of nebular shells in evolved planetary nebulae MARGARITA PEREYRA, MICHAEL GERARD RICHER, JOSE ALBERTO LOPEZ, Univ Nacl Autonoma de Mexico — We have selected a group of 100 evolved planetary nebulae (PNe) and study their kinematics based upon spatially-resolved, long-slit, echelle spectroscopy. The data have been drawn from the San Pedro Martir Kinematic Catalogue of PNe (Lopez et al. 2012). The aim is to characterize in detail the global kinematics of PNe at advanced stages of evolution with the largest sample of homogenous data used to date for this purpose. The results reveal two groups that share kinematics, morphology, and photo-ionization characteristics of the nebular shell and central star luminosities at the different late stages under study. The typical flow velocities we measure are usually larger than seen in earlier evolutionary stages, with the largest velocities occurring in objects with very weak or absent [NII]6584 line emission, by all indications the least evolved objects in our sample. The most evolved objects expand more slowly. This apparent deceleration during the final stage of PNe evolution is predicted by hydrodynamical models, but other explanations are also possible. These results provide a template for comparison with the predictions of theoretical models.

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