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*JOINT COLLOQUIUM*

**Kathryn's Wheel: a spectacular galaxy collision  
discovered in the Galactic neighbourhood**

BY

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3:15pm – 4:15pm (Tea will be served)

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**Abstract**

We report the discovery of the closest collisional ring galaxy to the Milky Way. Such rare systems occur due to ‘bulls-eye’ encounters between two reasonably matched galaxies. The recessional velocity of about  $840 \text{ km s}^{-1}$  is low enough that it was detected in the Anglo- Australian Observatory/UK Schmidt Telescope Survey for Galactic H  $\alpha$  emission. The distance is only  $\sim 10 \text{ Mpc}$  and the main galaxy shows a full ring of star-forming knots,  $6.1 \text{ kpc}$  in diameter surrounding a quiescent disc. The smaller assumed ‘bullet’ galaxy also shows vigorous star formation. The spectacular nature of the object had been overlooked because of its location in the Galactic plane and proximity to a bright star and even though it is the 60th brightest galaxy in the HI Parkes All Sky Survey (HIPASS) H I survey. The overall system has a physical size of  $\sim 15 \text{ kpc}$ , a total mass of  $M^* = 6.6 \times 10^9 M_{\odot}$  (stars + H I), a metallicity of  $[\text{O}/\text{H}] \sim -0.4$ , and a star formation rate of  $0.2\text{--}0.5 M_{\odot} \text{ yr}^{-1}$ , making it a Magellanic-type system. Collisional ring galaxies therefore extend to much lower galaxy masses than commonly assumed. We derive a space density for such systems of  $7 \times 10^{-5} \text{ Mpc}^{-3}$ , an order of magnitude higher than previously estimated. This space density suggests Kathryn’s Wheel is the nearest such system. We present discovery images, CTIO 4-m telescope narrow-band follow-up images and spectroscopy for selected emission components. Given its proximity and modest extinction along the line of sight, this spectacular system provides an ideal target for future high spatial resolution studies of such systems and for direct detection of its stellar populations.

*All Interested Are Welcome!*