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Title:	The Hercules cluster in X-rays with XMM-Newton and Chandra
Authors:	Tiwari, Juhi (/jspui/browse?type=author&value=Tiwari%2C+Juhi) Singh, Kulinder Pal (/jspui/browse?type=author&value=Singh%2C+Kulinder+Pal)
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Citation:	Monthly Notices of the Royal Astronomical Society, 500(4):5524–5542.
Abstract:	We present a detailed X-ray study of the central subcluster of the nearby ($z \sim 0.0368$) Hercules cluster (Abell 2151) identified as A2151C that shows a bimodal structure. A bright clump of hot gas with X-ray emission extending to radius $r \sim 304$ kpc and $LX = 3.03 \pm 0.02 - 0.04 \times 10^{43}$ erg s $^{-1}$ in the 0.4–7.0 keV energy range is seen as a fairly regular subclump towards the west (A2151C(B)). An irregular, fainter and cooler subclump with radius $r \sim 364$ kpc is seen towards the east (A2151C(F)) and has $LX = 1.13 \pm 0.02 \times 10^{43}$ erg s $^{-1}$ in the 0.4–7.0 keV energy band. The average temperature and elemental abundance of A2151C(B) are 2.01 ± 0.05 keV and $0.43 \pm 0.05 Z_{\odot}$, respectively, while these values are 1.17 ± 0.04 keV and $0.13 \pm 0.02 Z_{\odot}$ for A2151C(F). Low temperature (1.55 ± 0.07 keV) and a short cooling time (~ 0.81 Gyr) within the central 15 arcsec region confirm the presence of a cool core in A2151C(B). We identify several compact groups of galaxies within A2151C(F). We find that A2151C(F) is a distinct galaxy group in the process of formation and likely not a ram-pressure stripped part of the eastern subcluster in Hercules (A2151E). X-ray emission from A2151C shows a region of overlap between A2151C(B) and A2151C(F) but without any enhancement of temperature or entropy in the two-dimensional (2D) projected thermodynamic maps that could have indicated an interaction due to a merger between the two subclumps.
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