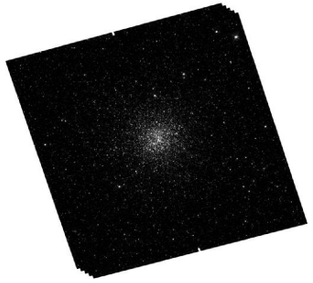
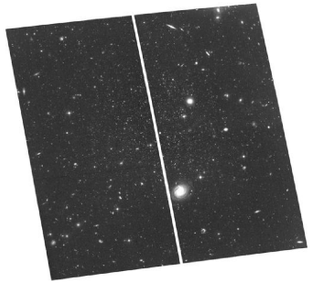
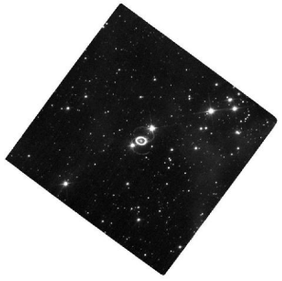
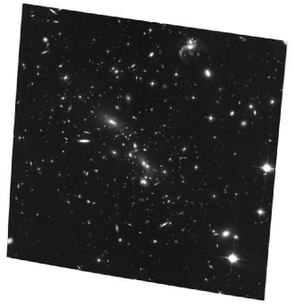
# Image-to-Text Retrieval

| Image | Top classes (fine-tuned) | Top classes (base) | Abstract |
|---|---|---|---|
|  | 1. globular clusters<br>2. crowded stellar field<br>3. resolved binaries | 1. globular clusters<br>2. star clusters<br>3. open clusters | Large Magellanic Cloud, Milky Way, star clusters, proper motion, gravitational potential; probe LMC's gravitational potential, study kinematic pattern of LMC using star clusters, place constraints on interaction history of Magellanic Cloud system |
|  | 1. dwarf galaxies<br>2. cosmic web structure<br>3. dark matter | 1. high-redshift quasars<br>2. gravitational lensing<br>3. gamma-ray bursts | Milky Way galaxy, Leo T dwarf galaxy, satellite galaxies, proper motion, dark matter halo; constrain Milky Way's dark matter halo mass, probe mass distribution at large scales, measure orbital energy of satellite galaxies |
|  | 1. supernova remnants<br>2. interstellar chemistry<br>3. galactic structure | 1. gravitational lensing<br>2. protoplanetary disks<br>3. planetary nebulae | Supernova 1987A, Type Ia supernova SN 1999by, Type Ic supernova SN 1998bw, inner ring of Supernova 1987A, supernovae, illuminating objects; Study rapidly developing encounter in Supernova 1987A, reveal location and velocity of reverse shock in Supernova 1987A, observe UV emission from supernovae, exploit spatial resolution to understand supernova dynamics, analyze late-time observations of Type Ia and Type Ic supernovae |
|  | 1. intracluster medium<br>2. galaxy clusters<br>3. galaxy interactions | 1. ultra diffuse galaxies<br>2. galaxy clusters<br>3. gravitational lensing | massive cluster merger, linear cluster merger, luminous and dark matter, multiple-image systems, intra-cluster gas; quantitatively study properties of dark matter, confirm and refine mass distribution model, constrain mass profile through weak-lensing analysis, map distribution and obtain gas temperatures of intra-cluster gas, reconstruct three-dimensional geometry and dynamics of merger, perform independent test of Bullet Cluster and MACSJ0025.4-1222 results |