

# Extended Sources Detected by Fermi

## What is the science question?

Most of the objects detected in gamma rays with the Fermi Large Area Telescope (LAT) are compact “point sources.” However, objects with *extended* light offer a unique window into discovery. They can arise from relativistic acceleration of particles, energetic particles getting deflected in strong magnetic fields, or even be from dark matter halos.

*Question: Are any current objects detected by Fermi-LAT extended?*

## What are the findings?

- We found 24 extended sources, 19 of which were not known to be extended
- Sources are inside our Milky Way galaxy
- Star forming regions/supernova remnants
- Put lower limits on intergalactic magnetic fields

## What was the impact?

- Developed publicly available techniques for finding extended sources
- Provided a public catalog
- Follow up analyses to determine limits on dark matter in the galaxy

## Why does it matter to non-scientists?

- Tells us important information about magnetic fields in the galaxy and the conditions in which stars – and ultimately planets – are born
- Gives us insight into how dark matter could be distributed in the galaxy

