Herschel Virgo Cluster Survey (HeViCS)

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The Proposal

286 hours of SPIRE and PACS parallel mode to scan 64 sq deg (8 scans) of the nearby Virgo cluster providing data from PACS at 110 and 170μm and SPIRE at 250, 350 and 500μm.

SD data is 2 scans of the central cluster field.
Science Topics

1. Star formation hidden by dust.
2. The energy balance – energy produced by dust.
5. Dust in elliptical galaxies.
6. The mass of cold dust.
7. Environmental effects on dust content of galaxies in clusters.
8. The detection of dust in dwarf galaxies.
9. Dust in the inter-galactic medium.
10. Background galaxies.
11. Unusual objects.
Specific Objects

**M87**

**M84**

Dust mass = $2 \times 10^6$ $M_\odot$

T = 25K
NGC4568

Dust mass = $2 \times 10^7 M_\odot$

$T=28K$
Properties of a Virgo 500μ selected sample

Sample selected at 500μ with 30 pixels within a 0.14 Jy/beam isophote. 31 galaxy detections 24 of which are well known Virgo Cluster galaxies. Other 7 detection have nearby SDSS sources. Many more fainter sources to be extracted from the data – Galactic cirrus will be a huge problem.

Mean dust mass (at 17 Mpc) = $3 \times 10^6 M_0$
Mean dust temperature of known Virgo galaxies = 22K
Mean temperature of 7 unknown sources = 13K

Dust mass = $3 \times 10^6 M_0$
T=13K
The link between dust and gas in Virgo: HI-rich galaxies

<table>
<thead>
<tr>
<th>SDSS</th>
<th>SPIRE 250µm</th>
<th>250µm cont. on SDSS</th>
<th>VIVA-HI cont. on SDSS</th>
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<tbody>
<tr>
<td>NGC4579</td>
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PACS and SPIRE data

M58

NGC4294/NGC4299

NGC4568

Optical
Conclusions

What a great piece of kit!