What is an ‘Abell radius’?

- George Abell put together a catalog of ~4 000 nearby galaxy clusters, completed in 1989.

- He arbitrarily defined a length scale that roughly corresponds to the typical ‘radius’ of a galaxy cluster.

- 1 Abell radius = $1.5h^{-1}$ Mpc = 2.14 Mpc
What are the lines seen in the diagram below?

- They are called ‘caustics’.
- Away from the cluster core, matter is not virialized but is infalling.
- This process, creates a locus in redshift space where the density of matter is “infinite”, hence a caustic.
What are the lines seen in the diagram below?
What are the lines seen in the diagram below?

Analytical prediction

Pisces-Perseus Supercluster

Giovanelli, Haynes 1985
What is the enclosed overdensity of the Virgo cluster?

- The best fit multi-attractor model parameters for Virgo (Masters 2005):

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Virgo</td>
<td></td>
</tr>
<tr>
<td>Position (Mpc)</td>
<td>(-4.7±0.7, 15.9±0.9, -0.3±1.0)</td>
</tr>
<tr>
<td>Mass (10^{15} M_{\odot})</td>
<td>0.6±0.2</td>
</tr>
<tr>
<td>Enclosed overdensity</td>
<td>0.8^{+0.5}_{-0.4}</td>
</tr>
</tbody>
</table>