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# Scientists Blogging/Science Blogging: An exploratory study and a look at the structure of the science blogosphere

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# Agenda

- Background
- How and why chemists and physicists use blogs
- Structure of the science blogosphere

# Social Computing Technologies (SCTs)

Technologies that enable:

- Social interactions online
- Contributions by individual authors
- Easy linking and sharing of media

# Do Scientists Use SCTs?

- PRC Survey of authors who publish in peer-reviewed journals (<http://www.publishingresearch.net/PeerReview.htm>)
  - 13% read blogs regularly
  - 11% contribute to a work-related wiki
  - 7% use social bookmarking
- 5% of industrial physicists read or maintain blogs for networking (AIP Survey)

How and Why  
Chemists and Physicists  
Use Blogs  
(Pikas study 1)

# Methods

- **Qualitative Content Analysis**
  - 15 blogs, most recent 10 posts
  - Purposive, maximum variation sampling
- **Responsive Interviews**
  - 6 bloggers, 25 minutes to 1 hour 15 minutes
  - Purposive sampling of bloggers from blogs used for content analysis

# Selected Results

- Public-private boundaries
- A new form of scholarly communication
- A learning tool

# Public-Private Boundaries in the Public Sphere

- Personal choice to blog
- Individual policies developed to maintain boundaries
- Identity
  - Choice is done thoughtfully
  - Anonymity is expensive

# Community

- Online communities separate from offline
- Communities are not generally based on research area
- Visitors and commenters play many of the roles common in online communities
  - Newbies
  - Trolls and Flamers
  - Lurkers

# A New Form of Scholarly Communication

- New work that is not enough for a paper
- Overflow from a paper
- Process-related information

# A Learning Tool

- Learning through writing
- Feedback from experts
- Deeper engagement with literature

# Implications: Science Communication

- **Scholarly communication: Informal**
  - Important function: mentoring; for example, role models for women scientists
  - Potential function: finding collaborators
- **Scholarly communication: Formal**
  - Immediacy and quality of reviews of journal articles
- **Potential for serendipitous finds of scientific content**

# Implications:

## Public Understanding of Science

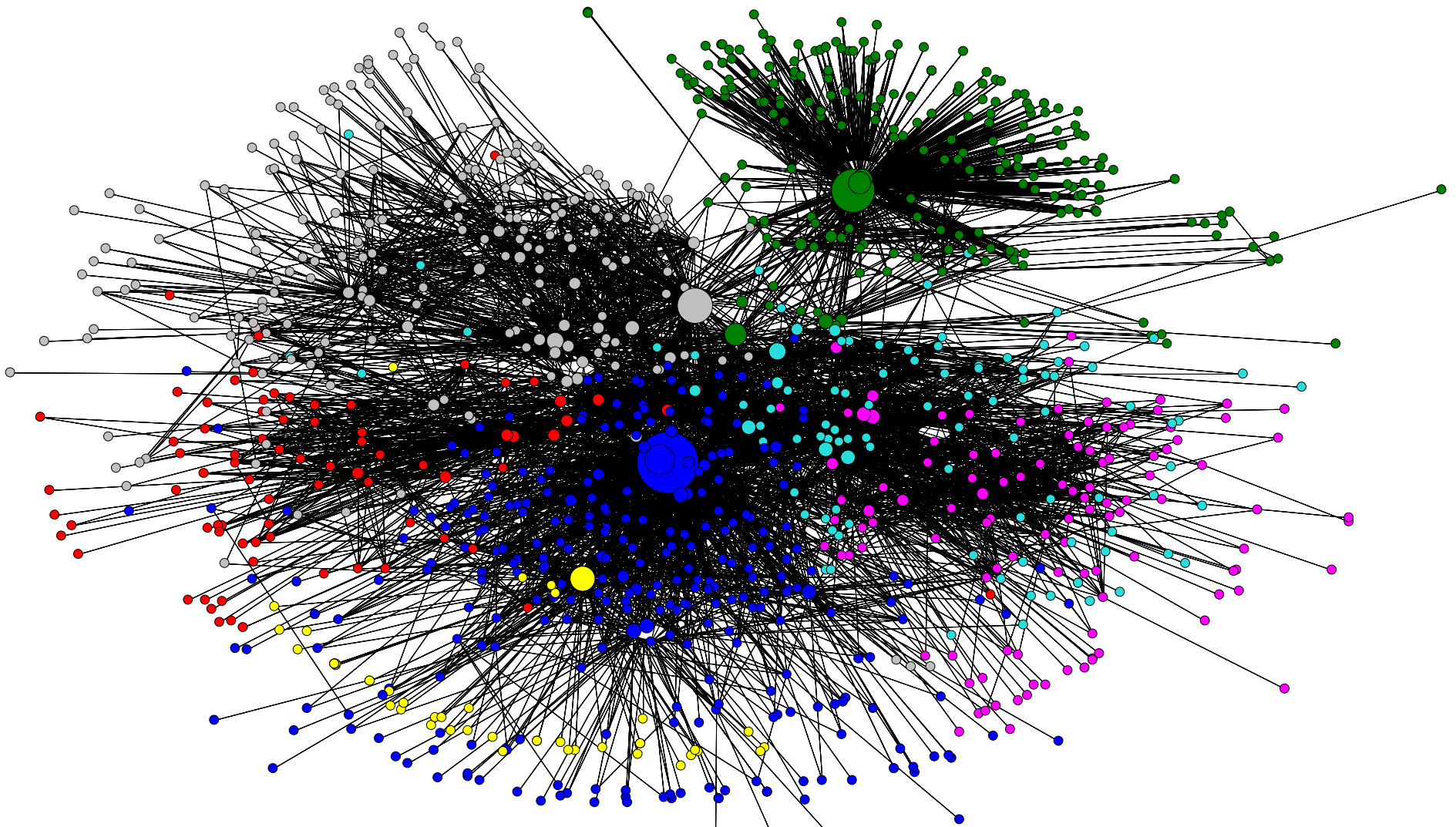
- Not very successful for these scientists in attracting non-scientist readers
- Basic science posts have been used in classrooms, have lead to e-mail exchanges
- Potential for greater understanding of how scientists do their work
- Potential for scientist-public communication is not realized yet

# Structure of the Science Blogosphere

(Pikas study 2)

# Methods

- **Sample**
  - Started with a core of blogs from study 1 and blog directories
  - Then used snowball sampling
- **Data: Networks from two types of links**
  - Blogroll listings (~1 100 blogs)
  - Blogroll: listing of links to other blogs
  - Commenter URLs (starting with 46 blogs)
- **Social Network Analysis**
  - Identify key actors
  - Identify cohesive subgroups



There are some interesting things to note:

There is just one component – all of the blogs are reachable by all other blogs (diameter is 9 so the longest path between two nodes is 9)








It is very dense

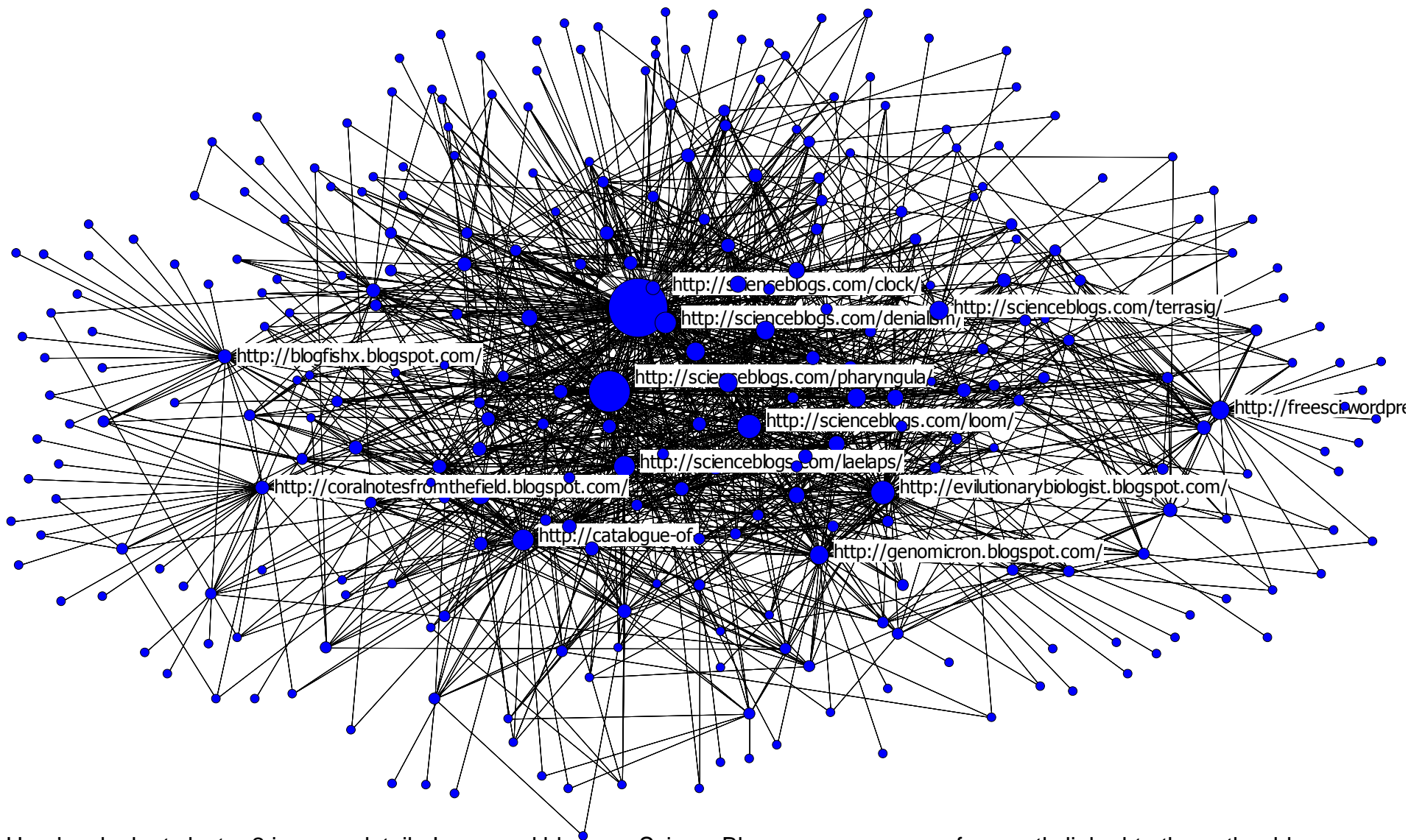
The size of the nodes here is by betweenness – shortest paths between other nodes flow through this blog

The color of the blogs is by cluster found using the spin glass algorithm developed by Reichardt and Bornholt using an analogy to statistical mechanics

The largest cluster is blue and that loosely corresponds to biological sciences.

The turquoise cluster is predominantly female bloggers, who frequently discuss issues of women in science

	<b>Cluster</b>	<b>n</b>	<b>Commonality</b>
	0	114	chemistry
	1	78	geosciences
	2	299	life sciences
	3	232	astronomy
	4	220	physics, math, computer science
	5	47	?
	6	101	female bloggers

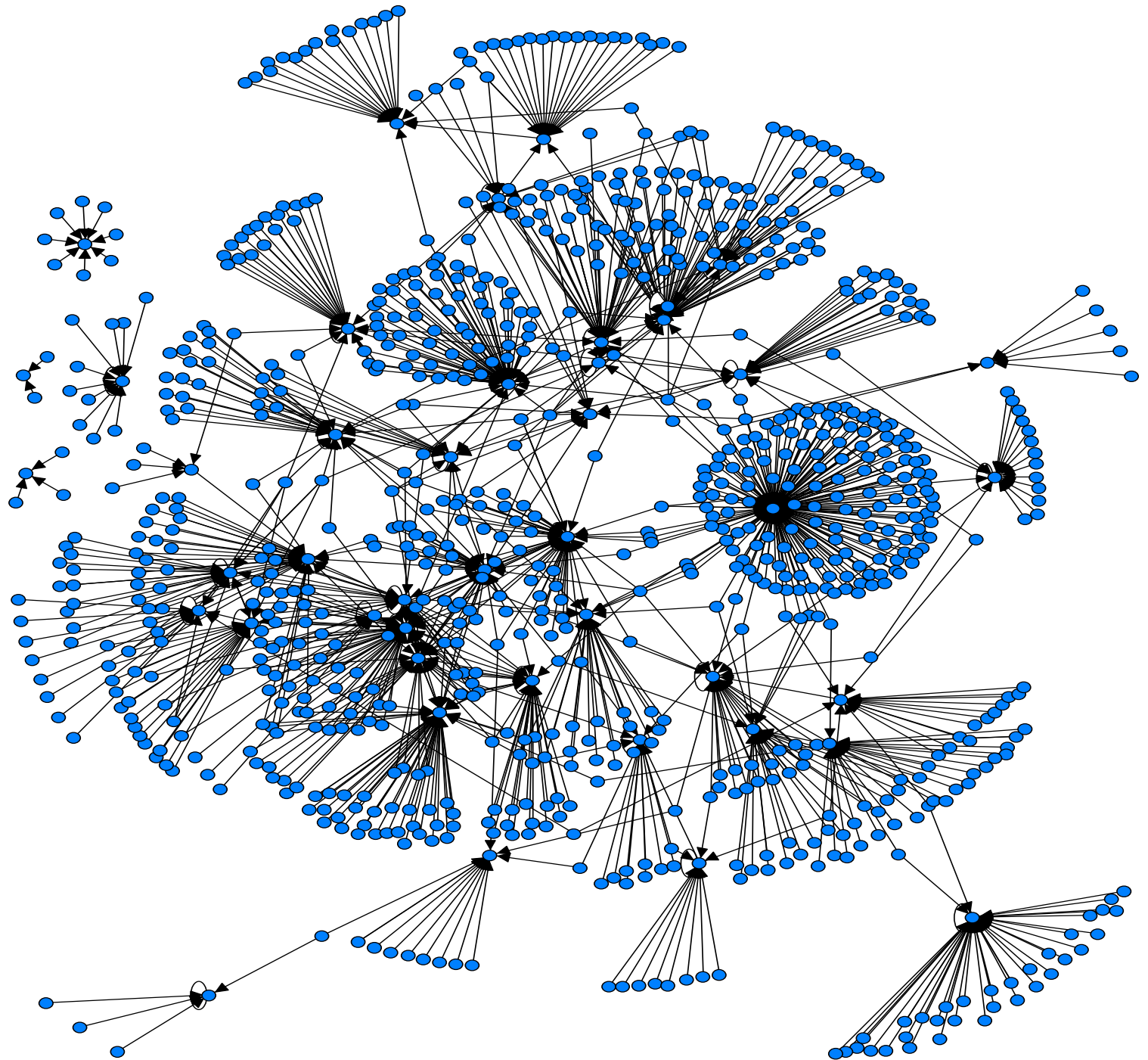


Here's a look at cluster 2 in more detail. In general blogs on ScienceBlogs.com were more frequently linked-to than other blogs. Along the left hand side, we see some deep sea/oceanography/marine biology researchers.

This is the commenter network:

I selected the top twenty blogs from the blogroll network for in degree, betweenness, and closeness (n=46). This network reflects the signed comments left on the most recent 10 posts as of mid-April 2008. A link from node a to node b means that someone left a comment on blog b signed with the url from blog a.

There were several smaller components. Interestingly, they are still pretty much clustered in the same groupings. The majority of the top 21 blogs by out degree are authored or co-authored by women. We also see a few blogs with high out degree that are not blogrolled at all (including one troll)



# Take Aways

- The science blogosphere is densely connected with many opportunities for influence and information diffusion
- There is a real community there
- Science blogs serve important functions of mentoring and role modeling
- Potential for public communication of science



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