

Mathematics faculty members and a visualization of their research areas

# Methodology:

- (1) We create a weighted graph  $G = (V_1, E_1, w_1)$  with  $V_1 :=$  research areas where the weights  $w_1(u, v)$  are proportional to the number of faculty members that have shared interests in  $u, v$
- (2) Then we compute an embedding that approximately minimizes the weighted number of crossings and weighted squared edge lengths while nodes repel each other.
- (3) Then we extend the graph to  $G_2 = (V_1 \cup V_2, E_2, w_2)$  where  $V_2 :=$  faculty members are connected to their primary, secondary, tertiary areas with edges of weight 1, 1/2, 1/4, resp. Finally we compute an embedding minimizing the weighted squared edge lengths while nodes repel each other.

# Meaning of colors:

hired since 2014

mid career faculty

at least 37 years since PhD

recent departures

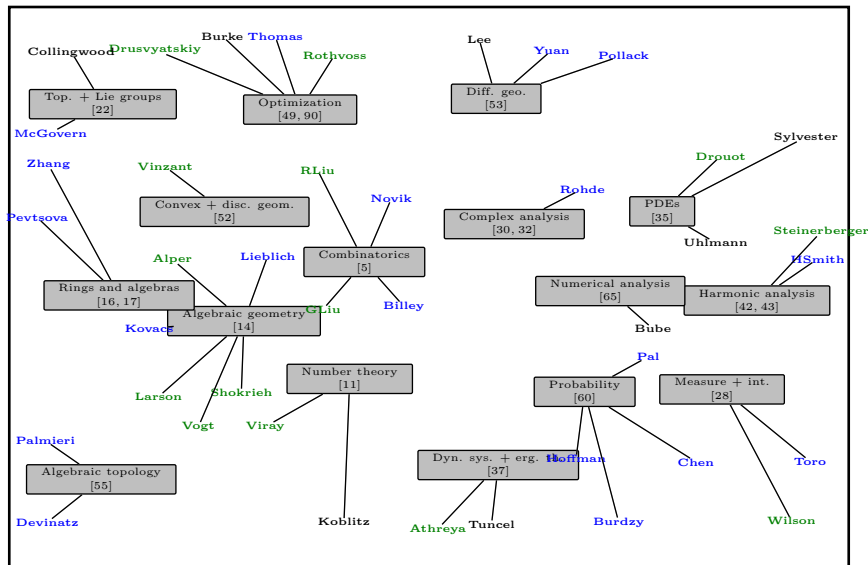
—— primary research area

---- secondary research area

■ 1 PhD student in 2010-2020

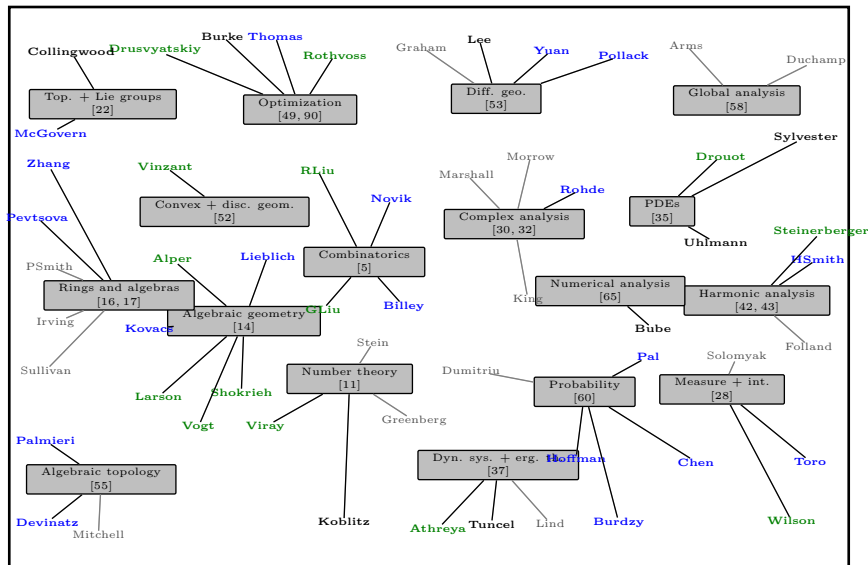
■ 1 Postdoc in 2011-2020

# Diagram A



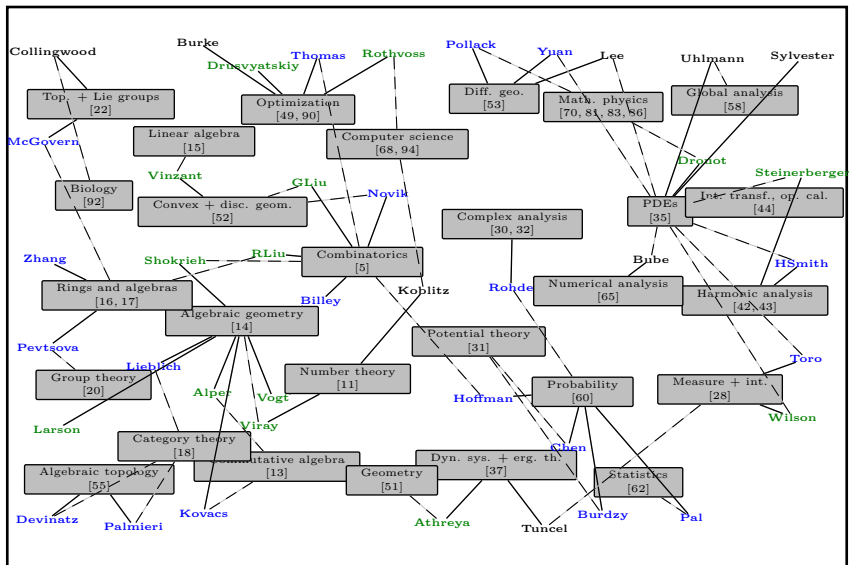
Without retired/departed faculty members. Only primary research area. Without disconnected areas.

# Diagram B



Including retired/departed faculty members. Only primary research area. Without disconnected areas.

# Diagram C



# Diagram D

