Network communities: A key to disclose structure and function of complex systems

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Networks
Community structure

Communities: sets of tightly connected nodes

• People with common interests
• Scholars working on the same field
• Proteins with equal/similar functions
• Papers on the same/related topics
• …
Community detection

What for?

• Organization
• Node classification
• Missing links
• Effect on dynamics
• ...

[Diagram of network with communities]
Basic questions

1) What is a community?
2) How is community structure generated?
3) How to detect it?
4) How to test community detection algorithms?
How is community structure generated?
Testing methods
Applications

Social networks

Brain networks

Information networks

Gene/protein networks
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THANK YOU

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