**OVERLAPPING OF COMMUNITY ON DYNAMIC NETWORK:**

**THERI DECTECTION AND MOBILE APPLICATION.**

*Community detection in network is one of most popular topic of modern network science.Communities or clustres are usually group of vertices having higher probabilties of being connected to each other group.*

*Identifying community is ill defined problem.There are no universal protocal on fundamental ingrediants,like the defination of community itself,nor on other crusial issues,like the validation of algorithm and the comparison of their performance.*

***Community:***

*In network science we call a community a group of nodes that have a higher likelihood of connecting to each other than to nodes from other communities.*

Belgium appears to be the model bicultural society: 59% of its citizens are Flemish, speaking Dutch and 40% are Walloons who speak French. As multiethnic countries break up all over the world, we must ask: How did this country foster the peaceful coexistence of these two ethnic groups since 1830? Is Belgium a densely knitted society, where it does not matter if one is Flemish or Walloon? Or we have two nations within the same borders, that learned to minimize contact with each other?

*To gain intuition about community organization, next we discuss areas where communities play a particularly important role-*

***SOCIAL NETWORKS-***

Social networks are full of easy to spot communities, something that scholars have noticed decades ago [3,4,5,6,7]. Indeed, the employees of a company are more likely to interact with their coworkers than with employees of other companies [3]. Consequently work places appear as densely interconnected communities within the social network. Communities could also represent circles of friends, or a group of individuals who pursue the same hobby together, or individuals living in the same neighborhood. A social network that has received particular attention in the context.

of community detection is known as Zachary’s Karate Club (Figure 9.2) [7], capturing the links between 34 members of a karate club. Given the club's small size, each club member knew everyone else. To uncover the true relationships between club members, sociologist Wayne Zachary documented 78 pairwise links between members who regularly interacted outside the club (Figure 9.2a).

The interest in the dataset is driven by a singular event: A conflict between the club’s president and the instructor split the club into two. About half of the members followed the instructor and the other half the president, a breakup that unveiled the ground truth, representing club's underlying community structure (Figure 9.2a). Today community finding algorithms are often tested based on their ability to infer these two communities from the structure of the network before the split.