Extending Network Lifetime in Wireless Sensor Networks

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- **Uses of Wireless Sensor Networks** include traffic/habitat/weather monitoring, object tracking, fire detection etc. Limited battery lifetime is one of the drawbacks and the most challenging research object to be addressed.

- A common phenomenon in such networks is the *Crowded Centre Effect*, where nodes having central location are preferred during route discovery (shortest paths). In result, their batteries run out faster than the rest, causing void areas and decreasing the overall network lifetime.
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- The algorithm to be built is based on geographic routing and with local information/decisions, high traffic areas (in grey) will be avoided.

- Main issues to be taken into account:
  a) the overall shape of the topology and coverage of large void areas (approximate global knowledge needed),
  b) the spatially averaged battery and
  c) the current traffic demand (computed locally over neighbourhood).

- The goal is to balance the network traffic and manage the global energy consumption in a way that (if possible) all nodes’ batteries will run out simultaneously.

Thank you!