

**Opportunistic Communication in Extreme Wireless Sensor Networks**  
**A step back towards the smart dust dream**

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**DOI**

[10.4233/uuid:73fe7835-43ac-4d65-bbf1-9202c7d72c45](https://doi.org/10.4233/uuid:73fe7835-43ac-4d65-bbf1-9202c7d72c45)

**Publication date**

2016

**Document Version**

Final published version

**Citation (APA)**

Cattani, M. (2016). *Opportunistic Communication in Extreme Wireless Sensor Networks: A step back towards the smart dust dream*. [Dissertation (TU Delft), Delft University of Technology].  
<https://doi.org/10.4233/uuid:73fe7835-43ac-4d65-bbf1-9202c7d72c45>

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# Propositions

accompanying the dissertation

## OPPORTUNISTIC COMMUNICATION IN EXTREME WIRELESS SENSOR NETWORKS

by

**Marco CATTANI**

1. Communication protocols can be simple or optimal, depending on whether they need to work or not. This is particularly true for networks where conditions are volatile and information is expensive to obtain (state-less principle).
2. In congested conditions, it is a good policy to first listen before introducing more noise. In many situations the required information is just there, ready to be exploited (opportunistic principle).
3. In the presence of extreme dynamics, “it is better to be approximately right than precisely wrong” (robustness principle).
4. The number of tunable parameters in wireless protocols should be minimized. Reality provides enough diversity and unpredictability (Chapter 5).
5. In real-world experiments, the usefulness of data is proportional to the boringness of collecting the ground truth.
6. Contrary to common belief, wireless technologies are more reliable than wired ones.
7. Different from other disciplines, computer scientists have the unique opportunity of designing the laws governing their own field. Therefore, they should aim at simplicity, rather than efficiency, making phenomena easier to model and understand.
8. Forcing researchers to publish grey-scale figures is like forcing a radio to communicate on a sole channel. As information pioneers, we should therefore advocate the adoption of colorful graphics in scientific publications.
9. Independent of the battery capacity, the lifetime of a wearable device is dictated by the age of its owner.
10. A successful researcher should think like a kid and be paid like an adult.

These propositions are regarded as opposable and defensible, and have been approved as such by the promoter Prof. dr. K. G. Langendoen.