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# Efficient Multi-Path Data Aggregation Scheduling in Wireless Sensor Networks

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Février 2013

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Identificateur du rapport CERIST-DTISI/RR—13-000000003--dz

Nom de l'organisme responsable **CERIST**

Date de publication 05/02/2013

**Résumé :** In wireless sensor networks, in-network data aggregation filters out redundant sensor readings in order to reduce the energy and bandwidth consumed in disseminating the data to the base-station. In this paper, we investigate the problem of reliable collection of aggregated data with minimal latency. The aim is to form an aggregation tree such that there are  $k$  disjoint paths from each node to the base-station and find a collision-free schedule for node transmissions so that the aggregated data reaches the base-station in minimal time. We propose a novel algorithm for Reliable and Timely dissemination of Aggregated Data (RTAD). RTAD intertwines the formation of the aggregation tree and the allocation of time slots to nodes, and assigns parents to the individual nodes in order to maximize time slot reuse. The simulation results show that RTAD outperforms competing algorithms in the literature.

**Mots clés :** wireless sensor network; data aggregation; scheduling media access; multi-paths.

## Table des matières

<b>1</b>	<b>Introduction</b>	<b>2</b>
<b>2</b>	<b>Related work</b>	<b>2</b>
<b>3</b>	<b>Problem Definition and Solution Strategy</b>	<b>3</b>
<b>4</b>	<b>Multi-path data aggregation scheduling</b>	<b>4</b>
4.1	<i>RTAD</i> description . . . . .	4
4.1.1	Temporal ordering of transmissions . . . . .	4
4.1.2	Selecting candidate parents . . . . .	5
4.1.3	Scheduling the transmitting nodes . . . . .	6
4.1.4	Adding overhearing slots . . . . .	7
4.2	Illustrative example . . . . .	7
<b>5</b>	<b>Simulation Results</b>	<b>8</b>
5.1	Percentage of orphan nodes . . . . .	8
5.2	Time latency . . . . .	10
5.3	Robustness . . . . .	10
<b>6</b>	<b>Conclusion</b>	<b>10</b>