

# Complexity of Multi-Valued Register Simulations: A Retrospective

Jennifer L. Welch

Department of Computer Science and Engineering, Texas A&M University, USA  
welch@cse.tamu.edu

---

## Abstract

I will provide a historical perspective on wait-free simulations of multi-bit shared registers using single-bit shared registers, starting with classical results from the last century and ending with an overview of the recent resurgence of interest in the topic. Particular emphasis will be placed on the space and step complexities of such simulations.

**2012 ACM Subject Classification** Theory of computation → Distributed algorithms

**Keywords and phrases** Distributed Systems

**Digital Object Identifier** 10.4230/LIPIcs.OPODIS.2018.1

**Category** Keynote



© Jennifer L. Welch;

licensed under Creative Commons License CC-BY

22nd International Conference on Principles of Distributed Systems (OPODIS 2018).

Editors: Jiannong Cao, Faith Ellen, Luis Rodrigues, and Bernardo Ferreira; Article No. 1; pp. 1:1–1:1

Leibniz International Proceedings in Informatics



LIPICs Schloss Dagstuhl – Leibniz-Zentrum für Informatik, Dagstuhl Publishing, Germany