

Publication

An Artificial Chemistry for Networking

Book Item (Buchkapitel, Lexikonartikel, jur. Kommentierung, Beiträge in Sammelbänden)

ID 106928

Author(s) Meyer, Thomas; Yamamoto, Lidia; Tschudin, Christian

Author(s) at UniBasel [Yamamoto Rodrigues, Lidia](#) ; [Tschudin, Christian](#) ; [Meyer, Thomas](#) ;

Year 2008

Title An Artificial Chemistry for Networking

Editor(s) Lio, P; Yoneki, E; Verma, DC

Book title Bio-Inspired Computing and Communication: First Workshop on Bio-Inspired Design of Networks, BLOWIRE 2007 Cambridge, UK, April 2-5, 2007 Revised Selected Papers

Publisher Springer

Place of publication Berlin ; Heidelberg

Pages S. 45-57

ISSN/ISBN 978-3-540-92191-2 ; 978-3-540-92190-5

Series title Lecture Notes in Computer Science

Number 5151

Keywords artificial chemistry, network protocols, distributed algorithms, load balancing, Fraglets

Chemical computing models have been proposed since the 1980ies for expressing concurrent computations in elegant ways for shared memory systems. In this paper we look at the distributed case of network protocol execution for which we developed an online artificial chemistry. In this chemistry, data packets become molecules which can interact with each other, yielding computation networks comparable to biological metabolisms. Using this execution support, we show how to compute an average over arbitrary networking topologies and relate it to traditional forms of implementing load balancing. Our long-term interest lies in the robust implementation, operation and evolution of network protocols, for which artificial chemistries provide a promising basis.

edoc-URL <http://edoc.unibas.ch/dok/A5253392>

Full Text on edoc No;

Digital Object Identifier DOI 10.1007/978-3-540-92191-2_5

ISI-number WOS:000264057500005