# 2022 IEEE/ACM 3rd **International Workshop on Quantum Software Engineering** (Q-SE 2022)

Virtual Workshop 18 May 2022



IEEE Catalog Number: CFP22AJ5-POD **ISBN:** 

978-1-6654-6232-7

Copyright © 2022, Association for Computing Machinery (ACM) All Rights Reserved

### \*\*\* This is a print representation of what appears in the IEEE Digital Library. Some format issues inherent in the e-media version may also appear in this print version.

IEEE Catalog Number:	CFP22AJ5-POD
ISBN (Print-On-Demand):	978-1-6654-6232-7
ISBN (Online):	978-1-4503-9335-5

#### Additional Copies of This Publication Are Available From:

Curran Associates, Inc 57 Morehouse Lane Red Hook, NY 12571 USA Phone: (845) 758-0400 Fax: (845) 758-2633 E-mail: curran@proceedings.com Web: www.proceedings.com



# The 3rd International Workshop on Quantum Software Engineering **Q-SE 2022**

## **Table of Contents**

Message from the Q-SE 2022 Chairs	vi	
Q-SE 2022 Program Committee	. vii	

### The 3rd International Workshop on Quantum Software Engineering

A Multi-lingual Benchmark for Property-Based Testing of Quantum Programs Gabriel Pontolillo (King's College London, United Kingdom) and Mohammad Reza Mousavi (King's College London, United Kingdom)	1
Investigating Quantum Cause-Effect Graphs Noah Oldfield (University of Oslo, Norway), Tao Yue (Simula Research Laboratory Oslo, Norway), and Shaukat Ali (Simula Research Laboratory Oslo, Norway)	8
Metamorphic Testing of Oracle Quantum Programs	16

Author Index		2	2	2	2	)	5	5	
--------------	--	---	---	---	---	---	---	---	--