

ISSN 1343-8670

**BULLETIN**  
of  
**THE KYUSHU INSTITUTE**  
of  
**TECHNOLOGY**

PURE AND APPLIED MATHEMATICS  
(Formerly MATHEMATICS, NATURAL SCIENCE)

**No. 66**  
**MARCH 2019**

Published by  
**THE KYUSHU INSTITUTE OF TECHNOLOGY**  
FACULTY OF ENGINEERING  
TOBATA, KITAKYUSHU, JAPAN

BULLETIN OF THE KYUSHU INSTITUTE OF TECHNOLOGY, PURE AND APPLIED MATHEMATICS NO. 66, MARCH 2019