

**19th Workshop: Noncommutative Probability, Noncommutative Harmonic Analysis  
and Related Topics with Applications, 31.07-6.08.2022, Będlewo**

**ABSTRACT**

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**Itô's Formula in Free Probability**

**Abstract:** I shall present an extension of a form of Itô's formula proven (by P. Biane and R. Speicher in 1998) for free Itô processes with respect to semicircular Brownian motion. The extension makes use of an interesting object called a "multiple operator integral (MOI)" that has applications in various branches of noncommutative analysis. Time permitting, I shall also discuss a useful "traced" version of the formula.