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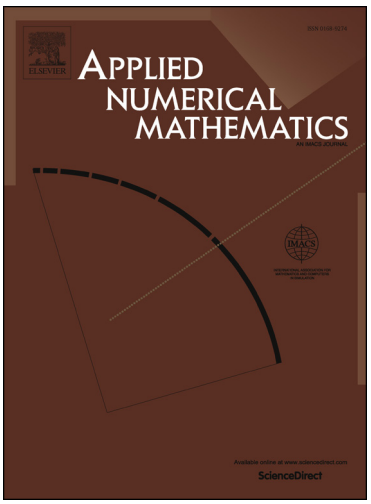

On the new properties of Caputo–Fabrizio operator and its application in deriving shifted Legendre operational matrix

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PII: S0168-9274(18)30134-X
DOI: https://doi.org/10.1016/j.apnum.2018.05.016
Reference: APNUM 3383

To appear in: *Applied Numerical Mathematics*

Received date: 6 October 2017
Revised date: 18 April 2018
Accepted date: 28 May 2018

Please cite this article in press as: J.R. Loh et al., On the new properties of Caputo–Fabrizio operator and its application in deriving shifted Legendre operational matrix, *Appl. Numer. Math.* (2018), https://doi.org/10.1016/j.apnum.2018.05.016

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Highlights

- For the first time, the shifted Legendre polynomials operational matrix in Caputo-Fabrizio has been derived.
- The new operational matrix together with Tau method has been successfully applied to solve problems with left-sided Caputo-Fabrizio operator.
- The numerical examples show that the method is easy to use and giving high accuracy when compared with existing method such as MQ-RBF collocation method.

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