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Journal Name:	British Journal of Mathematics & Computer Science
Manuscript Number:	2013_BJMCS_7059
Title of the Manuscript:	Fractional sub-equation method and analytical solutions to the Hirota-Satsuma coupled KdV equation and coupled mKdV equation
Type of the Article	Research Article

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This journal's peer review policy states that **NO** manuscript should be rejected only on the basis of '**lack of Novelty**', provided the manuscript is scientifically robust and technically sound.

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PART 1: Review Comments

	Reviewer's comment	Author's comment (if agreed with reviewer, correct the manuscript and highlight that part in the manuscript. It is mandatory that authors should write his/her feedback here)
Compulsory REVISION comments	This paper discusses the application of fractional sub-equation method, which is a developing analytical method for solving fractional differential equation. The idea is interesting and the writing of the paper is also good. However, I am wondering some general places. 1) the KdV equation and mKdV equation come from the concrete physical problem and one of their features is that the soliton solution. Hence there are several analytical methods to solve them. My first question is that what is the advantage of the method used here when comparing to other methods in the references, such as VIM, ADM, DTM. 2) it is not clear in the current paper that why the modified R-L fractional derivative is employed. Can this method be applied to an equation with Caputo derivative? R-L derivative?	1) The proposed fractional sub-equation method is an important method to investigate FPDEs, the method allows to obtain exact analytical solutions for the generalized hyperbolic function solutions, generalized trigonometric function solutions and rational solutions (see equation (10)). In present work the fractional sub-equation method has been applied to the soliton solutions for the KdV and mKdV coupled equations. For the soliton solutions considered (in the special case of the generalized hyperbolic function solutions) the present method turn out to be optimal in order to obtain the analytical solutions for the the KdV and mKdV coupled equations. To the best of our knowledge, the solutions obtained have not been reported in literature for the case of the mKdV coupled equation. We believe that the advantage of the sub-equation method in the present work is exactly this one, it allow us to obtain new soliton solutions for the mKdV coupled equation (se equations (38) and (43) of the



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		manuscript). 2) The proposed fractional sub-equation method is strongly based on the modified R-L fractional derivative, the modified R-L fractional derivative (see Eq. (3) and (4)) is employed together with fractional Riccati equation (Eq. 8) to transform FPDEs into a polynomial equation in the variable ϕ^i. In order to transform the original FPDEs into a polynomial equation the properties of the modified R-L fractional derivative (Eq. (4)) are taken into account, in particular thesecond of these properties turn out to be very important, i.e., the modified R-L fractional derivative of a constant results to be zero. See Eq. (4) underlined in yellow (line number 93) in the reviewed manuscript. This result is not equal to zero in other fractional derivatives definitions.
<u>Minor</u> REVISION comments		
<u>Optional/General</u> comments		