



SDI Review Form 1.6

PART 1:

Journal Name:	British Journal of Mathematics & Computer Science
Manuscript Number:	2013_BJMCS_3736
Title of the Manuscript:	A New Class of Odd-point Ternary Non-Stationary Schemes

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- This form has total 9 parts. Kindly note that you should use all the parts of this review form.



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PART 2: Review Comments

	Reviewer's comment	Author's comment (if agreed with reviewer, corrects the manuscript and highlight that part in the manuscript. It is mandatory that authors should write his/her feedback here)
<u>Compulsory</u> REVISION comments	This paper proposed a family of odd point ternary non-stationary interpolating subdivision curves. The subdivision masks are computed by using Lagrange identities. As the geometric rules change only in terms of the subdivision level, this kind of subdivision schemes is also called semi-stationary subdivision (Hongxin Zhang et al. Semi-stationary subdivision operators in geometric modeling. Progress in Natural Science, 2002, (10)). The authors further analyzed the convergence for the cases of 3 points and 5 points in detail and showed that their new scheme can produce quasi ellipses with less deviation than some existing ones. It is not clear why the authors defined their subdivision masks like Equation (2). What is the motivation to do this work and how does this definition match the goals? According to remark 3.1, the sum of subdivision weights is not equal to 1. I don't believe it is a good treatment due to the reason that the subdivision curves will lost the affine invariant property. Why did the authors not perform normalization? Actually, there are many non-stationary subdivisions being able to reproduce conics, see 'Kestutis Karciauskas and Jorg Peters. Curvature of Approximating Curve Subdivision Schemes. and 'S. Siddiqi _and Muhammad Younis. Non-stationary	Hongxin Zhang et al. "Semi-stationary subdivision operators in geometric modeling" discuss the binary subdivision scheme while the proposed scheme is ternary. Therefore we did not compare it with our scheme. We use Lagrange identities because these produced symmetric iterative schemes and our non-stationary schemes are also symmetric iterative interpolated. DD gave the idea for stationary 2N point schemes and we follow the idea for non-stationary 2N-1 point schemes by introducing trigonometric functions. Since the sum of the mask of our scheme is approximately one, so our proposed curves approximately satisfy the affine invariant property. Our normalized scheme has long trigonometric expression which creates computationally complexity we left normalization.



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	subdivision schemes originated from uniform trigonometric B-spline. http://arxiv.org/pdf/1302.0937.pdf. So I think it does not add points for the proposed approach to have less deviation to an ellipse than some existing. The quality of curves generated by the proposed seems not good. How about is the fairness of these curves compared with that of existing methods?	The schemes in articles “Curvature of Approximating Curve Subdivision Schemes” and “Non-stationary subdivision schemes originated from uniform trigonometric B-spline” are approximating schemes but our scheme is interpolating so we did not compare with them. No doubt, approximating schemes have less deviation error but they cannot control the shape of initial polygon but interpolating schemes have capability to preserve the shape of initial polygon because it passes through the initial control points.
<u>Minor</u> REVISION comments	Some typos: 1) In the abstract: ‘by proposed schemes compare to the existing non-stationary interpolating schemes’ → by proposed schemes compared to the existing non-stationary interpolating schemes’ 2) In Theorem 2.1, the definition of $\ \cdot\$ is not consistent. 3) $A_{\{x_m\}}$ has different definitions in Equations (2.6) and (3.2). It is better to different symbols. 4) in Remark 3.3, ‘does not effect’ → ‘does not affect’.	Typos mistakes have been corrected.
<u>Optional/General</u> comments	Though the contribution is minor, the mathematical inference looks sound.	We are grateful to the anonymous referee for improving our article