



SDI Review Form 1.6

Journal Name:	AdvancesinResearch
Manuscript Number:	2015_AIR_16827
Title of the Manuscript:	Multi-parametric deformations of Peregrine breathers solutions to the NLS equation
Type of the Article	Original Research Article

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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)
<u>Compulsory</u> REVISION comments	<p>Following corrections :</p> <p>Importance of higher order Peregrine breather solutions and comparison of solutions at different orders are not stated clearly in the paper.</p>	<p>AT2.1.</p> <p>I added in the conclusion a part on the importance of Peregrine breathers and their structure.</p> <p>In the conclusion, I also gave a comparative study until order 10 of the solutions of NLS.</p> <p>We still insist on the fact that quasi rational solutions of NLS equation can be expressed as a quotient of two polynomials of degree $N(N+1)$ in x and t dependent on $2N-2$ real parameters by an exponential depending on t. Among these aforementioned solutions of order N, there is one which has the largest module: it is the solution obtained in this representation when all the parameters are equal to 0; one obtains the Peregrine breather order N. His importance is due to the fact that among the solutions of order N, its module is largest, equal to $2N+1$. This result first formulated by Akhmediev has just been proved recently.</p>



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<p><u>Minor</u> REVISION comments</p>	<ol style="list-style-type: none"> 1. The third sentence of the Abstract should begin with "It is also proved that for the order" 2. At the end of the Introduction the author has mentioned that the Peregrine breather solution of order 11 is presented. But it is presented only graphically. 3. Figure 1 is to be enlarged. 4. Figure caption of Figure 1 should be "Solution to NLS Equation," 	<p>In the recent studies proposed by the author, the solutions of order N can be represented by their module in the plane $(x; t)$. With the representation given in this article, one obtains at order N, the configurations containing $N(N+1)/2$ peaks, except the special case of Peregrine breather. These configurations can be classified according to the values of the parameters $a_{\{i\}}$ or $b_{\{i\}}$ for i varying between 1 and $N-1$. It is important to note that the</p> <p>Role played by $a_{\{i\}}$ or $b_{\{i\}}$ for a given index i is the same one, in obtaining the configurations. The study refers to the analysis of the solutions when only one of the parameters is not equal to 0. Among these solutions, one distinguishes two types of configurations; for $a_{\{1\}}$ or $b_{\{1\}}$ not equal to 0, one observes triangular configurations with $N(N+1)/2$ peaks. For $a_{\{i\}}$ or $b_{\{i\}}$ not equal to 0 and $2 \leq i \leq N-1$, one observes concentric rings. The simplest structure is obtained for $a_{\{N-1\}}$ or $b_{\{N-1\}}$ not equal to 0 : one obtains only one ring of $2N-1$ peaks with in his center Peregrine breather of order $N-2$; this fact was also first formulated by Akhmediev. The detailed study of the other structures is being analyzed. We hope to be able to give results soon.</p>
<p><u>Optional/General</u> comments</p>		