



**SDI Review Form 1.6**

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| Journal Name:            | <a href="#">British Journal of Mathematics &amp; Computer Science</a>                    |
| Manuscript Number:       | 2014_BJMCS_14872                                                                         |
| Title of the Manuscript: | Feedback controls for finite time or asymptotic compensation in lumped disturbed systems |
| Type of the 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)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
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| <b>Compulsory</b> REVISION comments | <ol style="list-style-type: none"> <li>Equation (1.1) is describing the clarity for disturbance whether it with system or input.</li> <li>Feedback characteristic is not described here and must be state whether it is state feedback or the output feedback.</li> <li>System matrix A is a vector or matrix with dimension it should square matrix. B is a control column vector and its described dimension is completely wrong.</li> <li>Equation (1.4) is wrong.</li> <li>Equation (1.5) is revealing as frequency domain randomly and the analysis is carrying out in time domain which is contrast in nature therefore conclusion will hypothetic.</li> <li>After equation (1.5) two integral equation sum is wrong and how is zero . Describe the analysis for making zero and need of zero. The author does not have the clarity for the new idea.</li> <li>Equation (1.6) is describing the feedback positive in nature which is highly undesirable for the system stability and not acceptable.</li> </ol> | <ol style="list-style-type: none"> <li>More precisions and explications are given concerning the problem statement and the considered systems.</li> <li>The feedback controls are directly related to the disturbance and its corresponding observation, which is known even if <math>f</math> is not.</li> <li><math>B \in M_{n,p}(R)</math> and <math>u(t) \in R^p</math>, <math>Bu(t)</math> in then well defined and is in <math>R^n</math>.</li> <li><math>A \in M_{n,p}(R)</math> and <math>f \in L^2(0,T;R^n)</math>, <math>f(t)</math> in then in <math>R^n</math> and (1.4) is well defined.</li> <li><b>and 6-</b> : <math>f \in L^2(0,T;R^n)</math>, then <math>y(t)</math> is in <math>R^n</math> for <math>t \in (0,T)</math>. Equation (1.5) is elementary and well defined. On another hand, more details, explications and comments are given in this new version. The purpose, the mathematical developments, as well as the considered approach, are sufficiently commented and should be clear for any specialist in this area.</li> <li></li> <li>As mentioned before, the controls defined in equation (1.6) are feedback controls depending directly on the disturbance and includes controls depending on the observation <math>y_f</math> corresponding to disturbance <math>f</math>. <math>y_f</math> is well known in the considered case (linear systems) even if <math>f</math> is not. The considered problem is well</li> </ol> |



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|                                         | <p>8. In equation (3.1) it is ambiguous that the rank of controllability or observability.</p> <p>9. Proposition 3.2 is not clarifying the <math>T</math>. <math>\Lambda_T \theta</math> is be drown fully which is lacking here.</p> <p>10. Reference quoting is not correctly.</p> <p>11. For validation simulation result is absent and simulated results must be incorporated.</p> <p>12. Lacking of cohesiveness during entire papers, virtue of that equation symmetry is not seen.</p> | <p>defined and we do not need any other assumption or condition.</p> <p>8- Equation (3.1) is a characterization of the notion of remediability which is weaker than the controllability one. If <math>C=I</math> (the identity matrix), one retrieve the controllability matrix.</p> <p>9- <math>T</math> is the final time and <math>\Lambda_T</math> is well defined in lines 4 and 5 in proposition 3.2, page 6.</p> <p>10- The citations are correct and conform.</p> <p>11- The main purpose is to study first mathematically, the possibility of compensation of disturbances <math>f</math> which may be known or unknown, using feedback controls <math>u=Kf</math> with a convenient choice of the operator <math>K</math>. However, applications and numerical simulations may be submitted in a separate paper.</p> <p>12- No comment.</p> |
| <b><u>Minor</u></b> REVISION comments   | N/A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| <b><u>Optional/General</u></b> comments | N/A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |