

Report on "Global stabilization of a KdV equation with a distributed control saturated in L^2 -norm", by S. Marx, E. Cerpa, C. Prieur, V. Andrieu.

This article presents some new results on the problem of stabilization of the non linear KdV equation with a distributed control which is saturated in L^2 norm. The obtained results are very interesting and well-presented. Nevertheless there are some remarks and comments listed below that have to be taken into account before a possible inclusion in NOLCOS 2016.

1. General Remarks:

- (a) Could you explain why you take to parameters a and u_0 ? It is not very clear for me that you need both parameters.
- (b) The proof of Theorem 2 is not clear at all. How do you obtain (46) ? And the end of the proof is very strange as you obtain " $\|y\|_{L^2(0,L)} \leq \|y_0\| e^{aT} e^{at}$ " which is a very bad estimate.

2. Below are listed some errors and remarks:

- (a) There are a lot of punctuations missing at the end of the mathematical expressions.
- (b) Page 2, first column, last line, replace "For a " by "For".
- (c) Page 2 column 2, equation (7), the choice of " u_0 " is not very good as it is generally the initial condition.
- (d) Equation (17), why do you have a \sqrt{L} in the last term?
- (e) In the expression of Proposition 3, replace $g \in L^1(0, T, H^1(0, L)) \mapsto y \in L^2(0, T, H^1(0, L))$ by $g \in L^1(0, T, L^2(0, L)) \mapsto y \in B(T)$.
- (f) In Lemma 2, could you give a precise reference of this lemma in Zhang (1999), or cite Chapouly Lemma 18.
- (g) In the proof of Lemma 3, just before equation (19) replace $z \in L^2(0, T, L^2(0, L))$ by $z \in L^2(0, T, H^1(0, L))$.
- (h) In the proof of equation (33) why do you use Grnwall's inequality ? And I think that $C_5 = 1$.
- (i) In the last expression of (34), a square term is missing and replace T by T' .
- (j) In the last expression of (36), replace T by T' .
- (k) 3 lines after (37) replace "Lemmas" by "Lemma" and after "a solution to" by "a solution in".
- (l) In equation (39) replace k_2 by k .
- (m) Could you explain how you obtain (46) with (45) ?