

Manlab : Updates of the version 4.1.2

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1 Bugs fixed

- λ^2 terms are now taken into account correctly for @SystHBQ systems.

2 Time computation optimization

- The loop for the extraction of the coefficient of the series has been replaced by a vectorial affectation in `Fpn1.m` for @SystAQ.
- Vectorial computation of the derivations and products of the right-hand-side `Fpn1.m` for @SystHBQ.
- Optimization of the number of computation of real and complex forms in `Fpn1.m` for @SystHBQ.
- The loop in `Fpn1.m` has been optimized by taking into account the symmetry of the quadratic operator. It results in a loop of half the size of the previous version.
- The computation of a change of stability is now computed with polynomial interpolation when possible. It greatly improves the number of steps needed to compute the bifurcation point.
- The lu decomposition of the matrix $\frac{\partial R_{aux}}{\partial U_{aux}}$ is now done with permutation vectors. In some cases, this improves the time-computation for @SystHBQ systems.

3 Additional possibilities

- The vectorial initialization of @SystAQ and @SystHBQ systems is now automatically done when it is possible.
- Automatic initialization after a period doubling bifurcation (PD) made possible with `init_PD.m` method of @SystHBQ.
- Initialization of the limit cycle that appears after a Hopf bifurcation (Hopf) automatized with `init_Hopf.m` method of @SystHBQ. The example VDPstab has been added to give an insight.
- It is now possible to define a forcing term with an amplitude that is proportional to λ^2 for @SystHBQ systems.
- The function `Manlab_script` has been added. It can be called instead of `Manlab` main function to avoid the graphical interface.
- The class @SystHBQ_QP has been added for the continuation of quasi-periodic solutions with two frequencies. Some examples that goes along have been added as well.