16 Mar 2021

Hello ,

Here is my isma paper where I develop some backbone curves – like many conference papers of mine it reflects work in progress at the time and is not very polished, and I must confess I never really followed up on it.

The paper does allude to symmetry breaking but for some reason does not present a figure of a ‘symmetric case’ – for that have a look at the slides, #25 shows roughly what I mean by this.

But again maybe it can give some ideas on how to get AUTO to traverse the whole system.

Best regards,

Alex

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Alex,

I have been looking at your ISMA presentation and I assume the key plot is on slide 25. Although the plot shows the branches joined together, are you sure that this is the case (I assume from our discussions this morning you think that they might not be joined)? I assume the circles on the points around this region mean that there was a solver error (not fully converged?)? It would be nice to get a refined bifurcation plot around this region, preferably without solver errors!!

Regards,

Mike

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Yes that is the plot I meant, and you are correct that that there are solver errors in my results. And of course, since this only shows magnitudes, perhaps they are not joined – so overall my argument about pitchforks is far from mathematically robust! But I still think symmetry breaking is playing some sort of important role.

Hopefully proper continuation analysis will shed more light on this!

Best regards,

Alex

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Dear Dr Shaw, Prof Friswell

Thank you so much for the emails. I am following the correspondence. I will try my best to extract the most out of these publications. I believe hopefully then I can come up with more robust ideas. Alongside this, I will go more deeply into the continuation theory, as to the detection of bifurcation and so on.

Best regards,

Mehmet Selim Akay