Elmer Discussion Forum

Using two SteadyPhaseChange solvers in one simulation

arved

Using two SteadyPhaseChange solvers in one simulation

25 Mar 2022, 11:00

Dear Elmer community,

I am trying to solve a case involving two phase boundaries using SteadyPhaseChange. My axisymmetric setup consists of three blocks stacked on top of each other with top and bottom solid and liquid in the center. When using only one SteadyPhaseChangesolver it works well, with the case attached to this post I ran into the following error:

CODE: SELECT ALL

```
SteadyPhaseChange: ---------------------------------------------
SteadyPhaseChange: Using steady algorithm to find the isotherm
SteadyPhaseChange: ---------------------------------------------
SteadyPhaseChange: Steady state isoterm formulation
SteadyPhaseChange: Melting point found:               5.0500E+02
Note: The following floating-point exceptions are signalling: IEEE_UNDERFLOW_FLAG
STOP 1
ERROR:: SteadyPhaseChange: Isotherm is empty thus cannot map phase change surface
```

Is it generally possible to run such a case or would it require a modification of the solver?

I played a bit around and tried different configurations but nothing is working. It can be all found here, including a more extensive description and a couple of screenshots: https://github.com/nemocrys/elmer-double-phasechange

Thanks for your help and best regards
Arved

ATTACHMENTS

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raback
Site Admin

Re: Using two SteadyPhaseChange solvers in one simulation

25 Mar 2022, 13:20

Hi

Looking at line ~183 in
https://github.com/ElmerCSC/elmerfem/bl ... Change.F90

You can see that there is some stuff being allocated & initialized the 1st time. These should be different for the two instances so some modifications would be needed here. Also there should be a different flag for the two different instances. You might make a copy with different name & change the flag as the most simple solution.

-Peter

arved

Re: Using two SteadyPhaseChange solvers in one simulation

28 Mar 2022, 09:55

Hi Peter,

thanks a lot for this hint, I adjusted it and it works!

Attached to this post you can find my modified 'SteadyPhaseChange2.F90'. I'll also upload the whole setup here later today:
https://github.com/nemocrys/elmer-double-phasechange

Best regards
Arved

ATTACHMENTS

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