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                    CRATE - Clustering-based Nonlinear Analysis of Materials

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                                Release 1.0.0 (Jun 2023)

 Problem under analysis: example_input_data_file

 Input data file: example_input_data_file.dat

 Starting program execution at: 17h22m00s (02/Mar/2023)
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 Start phase: Read input data file


 > Reading the input data file...

 > Reading discretization file...
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 Start phase: Solve reduced microscale equilibrium problem

 Increment number:   1
 ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~
 Loading subpath:   1 |     Load factor | Total = 5.0e-03    Time | Total = 5.0e-03
          Increment:   1 |                | Incr. = 5.0e-03         | Incr. = 5.0e-03


 Self-consistent scheme iteration:   0
 ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~
 Young modulus (E): 1.4505e+02  (norm. change: -)
 Poisson ratio (v): 2.8051e-01  (norm. change: -)

          Iteration                        Normalized residuals
    Number    Run time (s)            Equilibrium   Mac. strain   Mac. stress
 --------------------------------------------------------------------------------
    0         5.9795e-03              0.0000e+00    1.0000e+00    0.0000e+00
    1         6.2778e-03              2.6344e-15    2.1684e-16    2.9407e-18


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 Iteration run time (s):  1.3539e-02


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     Homogenized strain tensor (ε)            Homogenized stress tensor (σ)

 [  2.5000e-04  4.0852e-07  0.0000e+00  ]   [  3.9515e-02  5.7499e-20  0.0000e+00  ]
 [  4.0852e-07 -9.7988e-05  0.0000e+00  ]   [  5.7499e-20  8.3009e-20  0.0000e+00  ]
 [  0.0000e+00  0.0000e+00  0.0000e+00  ]   [  0.0000e+00  0.0000e+00  1.0275e-02  ]
 ===============================================================================
 Increment run time (s):  1.3995e-02              Total run time (s):  8.7487e+00
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 End phase: Solve reduced microscale equilibrium problem (phase duration time = 8.32e+00s)
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 Ending program execution at: 17h23m07s (02/Mar/2023)

 Problem analysed: example_input_data_file

 Total execution time: 6.73e+01s (~0h1m)

 Execution times:

    Phase                                          Duration (s)      %
    --------------------------------------------------------------------
    Read input data                                2.95e-01        0.44
    Compute cluster analysis data matrix           1.45e+00        2.16
    Perform RVE cluster analysis                   3.33e+00        4.95
    Compute cluster interaction tensors            9.36e+00       13.91
    Solve reduced microscale equilibrium problem   8.32e+00       12.36
    Accumulated post-processing operations         4.45e+01       66.09
    --------------------------------------------------------------------

                            Program Completed
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Annotations (left margin):
- CRATE version ▶
- Input data file data ▶
- Current execution phase ▶
- Detailed execution steps ▶
- Increment number ▶
- Loading path data ▶
- Solution convergence ▶
- Homogenized response ▶
- Computational time ▶
- Total execution time ▶
- Execution time summary ▶