

Appendix A: Input files

● WIMSD-5 input for DCA, 1.2% ²³⁵U fuel

```
CLUSTER
PIJ
NGROUP 69
NMESH 37
NREGION 15 3
NMATERIAL 13 3
NRODS 28 4 100 11 3 4 1
PREOUT
INITIATE
ANNULUS 1 0.476      11
ANNULUS 2 2.149      6
ANNULUS 3 2.1635     6
ANNULUS 4 3.8365     6
ANNULUS 5 3.921      6
ANNULUS 6 5.594      6
ANNULUS 7 5.70       6
ANNULUS 8 5.84       6
ANNULUS 9 6.05       7
ANNULUS 10 6.625     8
ANNULUS 11 6.825     7
ANNULUS 12 7.5       9
ANNULUS 13 8.5       9
ANNULUS 14 10.0      10
ANNULUS 15 14.105    10
RODSUB 1 1 0.40      1
RODSUB 1 2 0.74      1
RODSUB 1 3 0.7515    4
RODSUB 1 4 0.8365    5
RODSUB 2 1 0.4       2
RODSUB 2 2 0.74      2
RODSUB 2 3 0.7515    4
RODSUB 2 4 0.8365    5
RODSUB 3 1 0.4       3
RODSUB 3 2 0.74      3
RODSUB 3 3 0.7515    4
RODSUB 3 4 0.8365    5
ARRAY 1 1 4 1.3125 0.7854
ARRAY 2 1 8 3.0 0.3927
ARRAY 3 1 16 4.7575 0.1963
MATERIAL 1 10.36 295 1 2235 1.05683 8238 86.793 6016 12.15 6239 1E-20
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MATERIAL 2=1
MATERIAL 3=1
MATERIAL 4 1.2E-03 295 -2 6016 23.52 14 76.48
MATERIAL 5 2.67 295 2 27 96.87 24 2.6 52 0.2
MATERIAL 6 0.9978 295 3 6016 88.81 3001 11.19 * Light Water.
*MATERIAL 6 1.2E-03 295 -3 6016 23.52 14 76.48 * Air.
MATERIAL 11 0.9978 295 3 6016 88.81 3001 11.19 * Light Water.
*MATERIAL 11 1.2E-03 295 3 6016 23.52 14 76.48 * Air.
MATERIAL 7 2.69 295 4 27 96.87 24 2.6 52 0.2
MATERIAL 8 1.2E-03 295 -3 6016 23.52 14 76.48 * Air
MATERIAL 9 1.1044 295 4 6016 80.04 3001 0.05 3002 19.91 *99.5%mol
MATERIAL 10=9
MESH 3 3 1 3 1 3 3 3 2 1 2 3 3 3 3
NPIJAN 10
POWERC 1 2E-04 0.296143 1
BUCKLING 2.994E-04 8.62E-04 2.994E-04 8.62E-04
BEGINC
DIFFUSION 1 1 6.825
BUCKLINGC 2.777E-04 7.99E-04 *Critical Buckling
BEGINC

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● CITATION input for DCA core with 25 “5Spu” Fuels and 72 “1.2% ²³⁵U” fuels

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1
0 0 0 0 0 1 1 0 0 0 0 0 0 0 0 0 0 0 1 0 0 0 0 0
0 0 1 1 0 0 0 0 1 1 0 1 1 0 0 0 0 0 0 0 0 0 0 0
999 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0.00000E+00 0.00000E+00 0.00000E+00 0.00000E+00 0.00000E+00 0.00000E+00
3
0 0 0 0 7 0 0 0 0 0 1 0 0 0 0 0 0 0 0 0 0 0 0
0.00000E+00 0.00000E+00 0.00000E+00 0.00000E+00 0.00000E+00 0.00000E+00
1.00000E+33 0.00000E+00 5.00000E-02 0.00000E+00 0.00000E+00 0.00000E+00
4
30 70.52369 30 68.39187 15 11.33443 4 001.0000
2 2.600000 30 108.1600 60 91.64000 4 4.500000 4 4.240000 6 8.160000
0 0.000000
5
3 3 3 3
8 2 6 3
7 1 5 3
3 3 3 3
4 4 4 3
9 9 9 3
8
8 6 4
... Cross sections data...

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