SkI4

EoS Submission Details

EoS name	SkI4
category	nuclear
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Abstract

This table corresponds to the zero temperature and $\beta-$equilibrium unified EoS by Gulminelli and Raduta [1]. The considered effective interaction is SkI4 [2]. Cluster energy functionals are those of Ref. [3].

References to the original work

1. F. Gulminelli and Ad. R. Raduta, arXiv:1504.04493.

2. P.-G. Reinhard and H. Flocard, Nucl. Phys. A 584 (1995) 467.

3. P. Danielewicz et J. Lee, Nucl. Phys. A818, 36 (2009).

Further References

Nuclear Matter Properties[1]

	Quantity	Unit	
n_S	saturation density in symmetric matter	fm^{-3}	0.16
E_0	binding energy per baryon at saturation	MeV	15.95
K	incompressibility	MeV	247.95
K'	skewness	MeV	0
J	symmetry energy	MeV	29.50
L	symmetry energy slope parameter	MeV	60.39
K_{sym}	symmetry incompressibility	MeV	-40.56

Neutron Star Properties[1]

	Quantity	Unit	
M_{max}	maximum mass	M$_{sun}$	2.18
$M_{DU,e}$	mass at DUrca threshold with μ^-	M$_{sun}$	1.64
$R_{M_{max}}$	radius at maximum NS mass	km	10.66
$R_{1.4}$	radius at 1.4 M$_{sun}$ NS mass	km	12.38

eos.thermo

eos.thermo and the three grid defining files are CompOSE standard data files and by definition available. eos.thermo does <u>not</u> necessarily provide all possible data.

table dimension	1
table type	1
total number of grid points	1179

Range and density (#) of the grid parameters:

	Quantity	Unit	min	max	#
T	Temperature	MeV	0.	0	1
n_b	Baryon Nr Density	fm^{-3}	1.E-07	1.594641	1179
Y_q	Charge Fraction		1.290729e-02	4.390412e-01	1

T, n_b, and Y_q are stored in eos.t, eos.nb, and eos.yq, respectively.

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[1]0-values indicate, that the corresponding data is not provided.

Further Available Data Files

Files and quantities listed in the following are provided beyond CompOSE's core requirements as outlined in Sec.4.2. of the CompOSE manual.

eos.compo : available

index	particle
10	n
11	p
0	e^-
1	μ^-
	- end of table -

further particle sets are defined. One set of quadruples for an unique heavy nucleus, see Table 7.2 of the manual.

Description of Phases

PHASE INDEX #4 : heavy nuclei present
PHASE INDEX #3 : homogeneous matter