

Thermohaline instability and rotation-induced mixing (I, II, III) (Corrigendum)

N. Lagarde¹, R. I. Anderson², C. Charbonnel^{2,3}, T. Decressin⁴, P. Eggenberger², S. Ekström², and A. Palacios⁵

¹ School of Physics and Astronomy, Birmingham University, Edgbaston, 152TT Birmingham, UK
 e-mail: lagarde@bison.ph.bham.ac.uk

² Department of Astronomy, University of Geneva, Chemin des Maillettes 51, 1290 Versoix, Switzerland

³ IRAP, UMR 5277 CNRS and Université de Toulouse, 14, Av. E. Belin, 31400 Toulouse, France

⁴ INAF – Osservatorio Astronomico di Roma, via Frascati 33, 00040 Monte Porzio, Italy

⁵ LUPM, Université Montpellier II, CNRS, UMR 5299, place E. Bataillon, 34095 Montpellier, France

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Table 1. $Z = 0.0001$.

M (M_{\odot})		V_{ZAMS}/V_{crit}	V_{ZAMS} (km s^{-1})
0.85	th. +rot.	0.30	115
1.0	th. +rot.	0.30	116
1.25	th. +rot.	0.30	125
1.5	th. +rot.	0.30	134
2.0	th. +rot.	0.30	150
	th. +rot.	0.60	300
2.5	th. +rot.	0.30	162
3.0	th. +rot.	0.30	170
4.0	th. +rot.	0.26	152
	th.+rot.	0.53	304
6.0	th. +rot.	0.30	175

Table 2. $Z = 0.002$.

M (M_{\odot})		V_{ZAMS}/V_{crit}	V_{ZAMS} (km s^{-1})
0.85	th. +rot.	0.30	114
1.0	th. +rot.	0.30	112
1.25	th. +rot.	0.30	115
1.5	th. +rot.	0.30	123
2.0	th. +rot.	0.30	137
2.5	th. +rot.	0.30	146
3.0	th. +rot.	0.30	153
4.0	th. +rot.	0.30	163
6.0	th. +rot.	0.30	170

The initial rotation velocities of the stellar evolution models computed by Charbonnel & Lagarde (2010) and Lagarde et al. (2011, 2012) correspond to 30% instead of the published 45% of the critical velocity at the zero-age main sequence (ZAMS). An erroneous expression for the calculation of the critical velocity was used (cf. Sect. 2.3 of Lagarde et al. 2012). The correct expression for critical rotation velocity reads:

$$V_{crit} = \left(\frac{2}{3} \frac{GM}{R} \right)^{\frac{1}{2}}. \quad (1)$$

Table 3. $Z = 0.004$.

M (M_{\odot})		V_{ZAMS}/V_{crit}	V_{ZAMS} (km s^{-1})
1.0	th. +rot.	0.30	112
1.25	th. +rot.	0.30	111
1.5	th. +rot.	0.30	119
2.0	th. +rot.	0.31	123
2.5	th. +rot.	0.31	141
3.0	th. +rot.	0.30	147
4.0	th. +rot.	0.28	147
6.0	th. +rot.	0.30	167

Table 4. $Z = 0.014$.

M (M_{\odot})		V_{ZAMS}/V_{crit}	V_{ZAMS} (km s^{-1})
1.0	th. +rot	0.23	88
1.25	th. +rot.	0.30	110
1.5	th. +rot.	0.30	110
2.0	th. +rot.	0.27	110
	th. +rot.	0.61	250
2.5	th. +rot.	0.30	130
3.0	th. +rot.	0.30	136
4.0	th. +rot.	0.30	144
	th. +rot.	0.62	300
6.0	th. +rot.	0.30	156

In Tables 1–4, we provide the assumed V_{ZAMS} as well as the corrected values of the ratio V_{ZAMS}/V_{crit} for the published models at different metallicities.

We note that the model predictions are not further affected by this error, since all computations are made using the current velocity in [km s^{-1}], not in units of critical velocity.

References

- Charbonnel, C., & Lagarde, N. 2010, A&A, 522, A10
 Lagarde, N., Charbonnel, C., Decressin, T., & Hagerberg, J. 2011, A&A, 536, A28
 Lagarde, N., Decressin, T., Charbonnel, C., et al. 2012, A&A, 543, A108