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Erratum to: Phase Stability of Low-Density, Multiprincipal Component Alloys Containing Aluminum, Magnesium, and Lithium

X. YANG,[1] S.Y. CHEN,[1] J.D. COTTON,[2,3] and Y. ZHANG[1,4]

1.—High-Entropy Theory Center, State Key Laboratory for Advanced Metals and Materials, University of Science and Technology Beijing, Beijing 100083, China. 2.—Metallic Materials Group, The Boeing Company, MC 19-HP, PO Box 3707Seattle, WA 98124-2207, USA. 3.—e-mail: james.d.cotton@boeing.com. 4.—e-mail: drzhangy@ustb.edu.cn

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Due to calculation error, Table II, Table V, Fig. 5, and Fig. 6 in the paper were not presented correctly. The updated versions of Table II, Table V, Fig. 5, and Fig. 6 are shown below.

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Table II. Theoretical (ρ_{theor}) and measured densities (ρ_{exp}), and chemical compositions (at.%) of phases identified in the microstructures of AlLiMgZnSn, $AlLi_{0.5}MgZn_{0.5}Sn_{0.2}$, $AlLi_{0.5}MgZn_{0.5}Cu_{0.2}$, $AlLi_{0.5}MgCu_{0.5}Sn_{0.2}$, $Al_{80}Li_5Mg_5Zn_5Sn_5$, and $Al_{80}Li_5Mg_5Zn_5Cu_5$ alloys

				Measured chemical composition (at.%)				
Alloys	**ρ_{theor} (g/cm^3)**	**ρ_{exp} (g/cm^3)**	**Regions**	**Al**	**Mg**	**Zn**	**Sn**	**Cu**
AlLiMgZnSn	3.88	4.23	A	0	62.8	1.79	35.41	–
			B	54.65	0	44.59	0.76	–
			C	89.44	0	10.56	0	–
			D	0	0	11.31	88.69	–
$AlLi_{0.5}MgZn_{0.5}Sn_{0.2}$	2.90	3.22	A	36.25	35.51	28.23	0	–
			B	0	58.93	3.02	38.04	–
			C	83.45	12.75	3.79	0	–
$AlLi_{0.5}MgZn_{0.5}Cu_{0.2}$	2.75	3.73	A	39.26	37.79	16.34	–	6.61
			B	32.87	32.46	15.70	–	18.97
			C	70.36	20.12	8.77	–	0.74
$AlLi_{0.5}MgCu_{0.5}Sn_{0.2}$	2.96	3.69	A	49.05	34.06	–	0	16.88
			B	36.76	35.09	–	0	28.15
			C	4.30	22.12	–	73.58	0
$Al_{80}Li_5Mg_5Zn_5Sn_5$	3.05	3.05	A	87.83	1.47	3.89	6.81	–
			B	8.20	2.47	3.95	85.38	–
$Al_{80}Li_5Mg_5Zn_5Cu_5$	2.91	3.08	A	94.54	1.88	2.38	–	1.20
			B	72.23	0	1.87	–	25.91

Table V. Complete list of investigated alloy compositions, and calculated values for Ω, δ, $\Delta\chi$ and VEC

Alloys	**Major phases**	**ΔH_{mix} (kJ/mol)**	**ΔS_{mix} (J/mol K)**	**Ω**	**δ**	**$\Delta\chi$**	**VEC**
Initial compositions							
AlLiMgZnSn	Mg_2Sn/Li_2MgSn + Zn + Al + Sn	−6.08	13.38	1.54	5.39	0.33	4.40
$AlLi_{0.5}MgZn_{0.5}Sn_{0.2}$	Mg_2Sn/Li_2MgSn + $Mg_{32}(AlZn)_{49}$ + Al	−3.89	12.31	2.50	5.66	0.27	3.84
$AlLi_{0.5}MgZn_{0.5}Cu_{0.2}$	$Mg_{32}(AlZn)_{49}$ + Unkown	−3.30	12.31	3.15	6.72	0.26	4.28
$AlLi_{0.5}MgCu_{0.5}Sn_{0.2}$	AlCuMg + Mg_2Sn/Li_2MgSn + Sn	−3.65	12.31	3.01	7.60	0.31	3.69
$Al_{80}Li_5Mg_5Zn_5Sn_5$	Al + Mg_2Sn/Li_2MgSn + Sn	−0.53	6.47	10.68	3.61	0.17	3.35
$Al_{80}Li_5Mg_5Zn_5Cu_5$	Al + Al_2Cu + $AlCu_3$	−1.14	6.47	5.21	4.10	0.17	3.70
Additional compositions investigated for phase content only							
$(Al_{0.5}Mg_{0.5})_{95}Li_5$	$Al_{12}Mg_{17}$ + LiMg + Unknown phase	−2.19	7.13	2.95	5.50	0.18	2.43
$(Al_{0.5}Mg_{0.5})_{90}Li_{10}$	$Al_{12}Mg_{17}$ + LiMg + Unknown phase	−2.34	7.89	2.97	5.38	0.20	2.35
$(Al_{0.5}Mg_{0.5})_{85}Li_{15}$	$Al_{12}Mg_{17}$ + LiMg + Unknown phase	−2.47	8.41	2.92	5.26	0.22	2.28
$(Al_{0.5}Mg_{0.5})_{75}Li_{25}$	$Al_{12}Mg_{17}$ + LiMg + Unknown phase	−2.63	9.00	2.77	4.99	0.25	2.13
AlMgLi	$Al_{12}Mg_{17}$ + LiMg + Unknown phase	−2.67	9.13	2.64	4.74	0.26	2.00
$Al_{40}Mg_{40}Li_{10}Cu_{10}$	$Al_{12}Mg_{17}$ + $Mg_{32}Al_{47}Cu_7$ + AlCuMg	−2.76	9.92	3.32	7.06	0.25	3.20
$Al_{35}Mg_{35}Li_{15}Cu_{15}$	$Al_{12}Mg_{17}$ + $Mg_{32}Al_{47}Cu_7$ + AlCuMg	−3.11	10.84	3.21	7.62	0.28	3.55
$Al_{40}Mg_{40}Li_{10}Zn_{10}$	$Mg_{32}(AlZn)_{49}$ + HCP	−2.68	9.92	3.17	5.74	0.21	3.30
$Al_{35}Mg_{35}Li_{15}Zn_{15}$	$Mg_{32}(AlZn)_{49}$ + HCP	−3.08	10.84	2.89	5.79	0.23	3.70
$AlLi_{0.4}MgZn_{0.5}Sn_{0.2}$	Mg_2Sn/Li_2MgSn + $Mg_{32}(AlZn)_{49}$ + Al	−3.68	12.18	2.65	5.71	0.26	3.94
$Al_{35}Mg_{35}Li_{15}Cu_{10}La_5$	Al_7CuLa_2 + AlCuMg + $Mg_{32}Al_{47}Cu_7$ + $Al_{12}Mg_{17}$ + Li-rich phase	−6.07	11.64	1.75	8.73	0.27	3.15
$Al_{35}Mg_{35}Li_{15}Cu_{10}Ce_5$	Al_3CeCu +AlCuMg + $Mg_{32}Al_{47}Cu_7$ + $Al_{12}Mg_{17}$ + Li-rich phase	−6.04	11.64	1.75	8.23	0.27	3.15
$Al_{35}Mg_{35}Li_{15}Zn_{10}La_5$	Al_2LaZn_2 + $Al_{12}Mg_{17}$ + Mg-rich phase	−6.25	11.64	1.58	7.59	0.24	3.25
$Al_{35}Mg_{35}Li_5Zn_{10}Ce_5$	Al_4Ce + $Mg_{32}(AlZn)_{49}$ + Mg-rich phase	−6.22	11.64	1.57	7.03	0.23	3.25

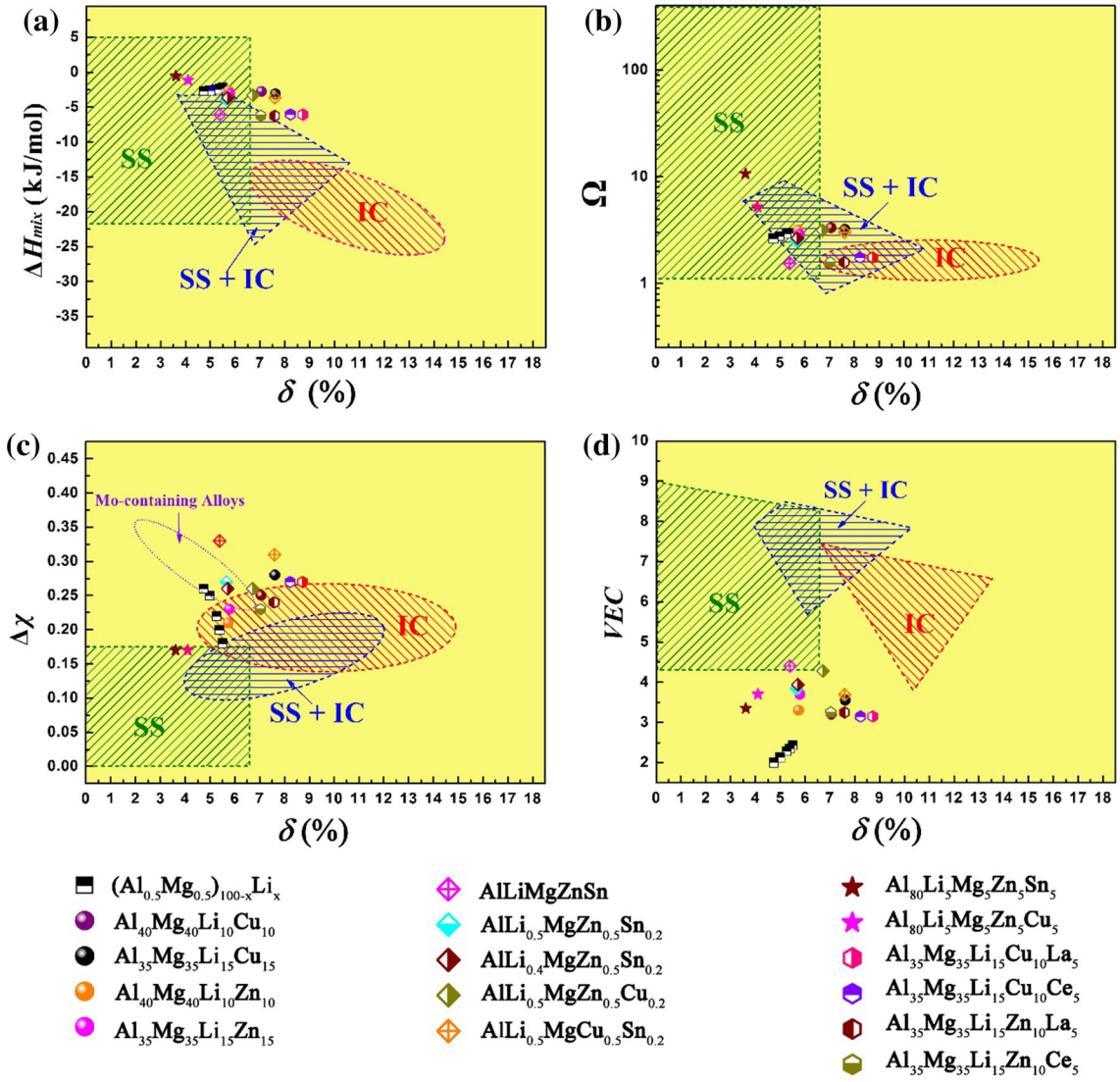

Fig. 5. Phase constituent prediction maps: (a) $\delta - \Delta H_{mix}$; (b) $\delta - \Omega$; (c) $\delta - \Delta\chi$; and (d) $\delta -$ VEC plots for multiprincipal component alloys in this work overlaid on cross-hatched regions developed in previous HEA investigations. (For $(Al_{0.5}Mg_{0.5})_{100-x}Li_x$, x = 5, 10, 15, 25 and 33.33).

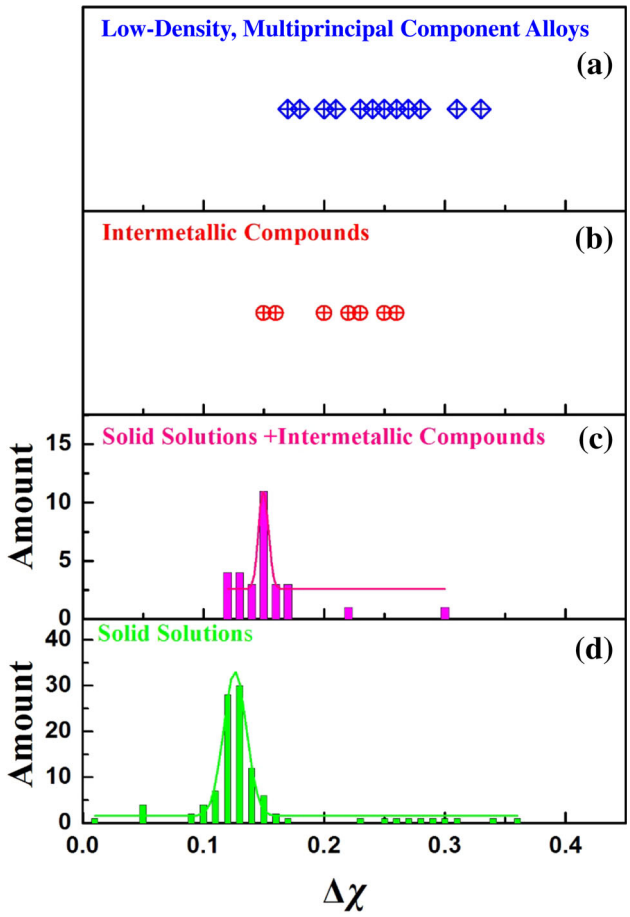

Fig. 6. Values and frequency distributions (c and d) of electronegativity difference ($\Delta\chi$) for: (a) low-density, multiprincipal component alloys (this work); (b) intermetallic compounds; (c) both solid solutions and intermetallic compounds; and (d) solid solution phases.