

Editorial December 2010

As promised in our June editorial, we can again look at the top 10 papers downloaded from www.ijmr.de since the beginning of 2008 for an indication of which papers and subject areas are generating the most interest in the journal.

Overall, the most striking feature is that, whilst most papers have changed position in the table, there are only two newcomers to the list. That the new papers are from 2009 and replace papers from 2008, alters the balance of papers to favour our centenary volume by 6 to 4. The “competition” between steels/iron alloys (three papers) and thermodynamics (four papers) is maintained, demonstrating the continued popularity of two of IJMR’s strong subjects. Fries et al. “Upgrading CALPHAD to microstructure simulation: the phase-field method” [1] has moved up to first place, pushing Allain et al. “The influence of plastic instabilities on the mechanical properties of a high-manganese austenitic FeMnC steel” [2] into second. Iron alloys and thermodynamics are again represented in third and fourth places, respectively, by Meka et al. “The emergence and disappearance of a high density of microcracks in nitrated Fe-4.65 at.%Al alloy” [3] and Schön and Jansen “Prediction, determination and validation of phase diagrams via the global study of energy landscapes” [4], both papers moving up one position in the last six months.

In fifth place is the first newcomer, Wallgram et al. “Technology and mechanical properties of advanced γ -TiAl based alloys” [5]. The paper is a review of the group’s progress in establishing a novel production technology for γ -TiAl components destined for use in advanced aero-engines; the August issue in which it was published was dedicated to Prof. Dr. Franz Jęglitsch for his 75th birthday. The assessment of texture estimation methods by Bhadeshia et al. “Calculation of crystallographic texture due to displacive transformations” [6] has dropped three places, whilst Horbogen’s fascinating look at the differences in the meaning, use and implications of the term “evolution” in biology and materials science, “Evolution of microstructure in materials” [7] remains in seventh.

The second newcomer to the top 10 is in eighth place, Jeurgens et al. “Thermodynamics of reactions and phase transformations at interfaces and surfaces” [8]. In an extensive feature article written for the centenary volume of IJMR, the authors provide an exhaustive review of the thermodynamics of relevant interfacial phenomena. Theory, predictive techniques and experimental observation are evaluated and compared for systems where thermodynamics can deviate significantly from the “expected” behaviour of “bulk” mate-

rials. In ninth place is the only other non-mover in the list, “Thermodynamic re-assessment of the Ti–Al–Nb system” by Cupid et al. [9], a paper which continues the turbine alloy theme of Wallgram et al. This paper was also a runner-up in the 2009 Köster Prize (for excellent original contributions to the field of materials science published in IJMR), maintaining the presence of Köster Prize contenders in the top 10 after the departure of Grundy et al. (see below). Finishing the list, in tenth place and perhaps showing that an understanding of bibliometry is becoming necessary for scientific authors, Marx “The anatomy of the International Journal of Materials Research in the light of bibliometry” [6] gives an insight into the complex world of bibliometric evaluation methods increasingly used to judge authors’ “success” in publishing their work.

Finally, a mention for the two papers dropping out of the list, both in the field of thermodynamics. Hallstedt “From binary assessments to thermodynamic databases” [11] examined the challenge in assessing multi-component alloy systems and the need for ternary system datasets. Grundy et al. “A model to calculate the viscosity of silicate melts. Part I: Viscosity of binary SiO_2 – MeO_x systems (Me = Na, K, Ca, Mg, Al)” [12] was a runner-up in the 2008 Köster Prize and described their development of a silicate viscosity model with great relevance to metallurgical slags.

In June 2011 we shall see what impact this year’s papers make on the list.

References

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