## Journal of ELECTRONIC MATERIALS

Volume 41, No. 1

## CONTENTS

January 2012

## PAGE SPECIAL ISSUE: PHASE STABILITY, PHASE TRANSFORMATION AND REACTIVE PHASE FORMATION IN ELECTRONIC MATERIALS

- 1 Foreword

  Chih-Ming Chen, Hans Flandorfer, Sinn-Wen Chen, Jae-Ho Lee, Yee-Wen Yen, Clemens Schmetterer, Ikuo Ohnuma, and Chao-Hong Wang
- Influence of Pd Concentration on the Interfacial Reaction and Mechanical Reliability of the Ni/Sn-Ag-Cu-xPd System C.E. Ho, L.H. Hsu, S.W. Lin, and M.A. Rahman
- Solid–Solid Reaction Between Sn-3Ag-0.5Cu Alloy and Au/Pd(P)/Ni(P) Metallization Pad with Various Pd(P) Thicknesses C.E. Ho, W.H. Wu, L.H. Hsu, and C.S. Lin
- 22 Phase Equilibria of the Sn-Bi-Te Ternary System Chen-Nan Chiu, Chia-Ming Hsu, Sinn-Wen Chen, and Hsin-Jay Wu
- 32 Kinetics of Solid-State Reactive Diffusion in the (Pd-Ni)/Sn System
  M. Hashiba, W. Shinmei, and M. Kajihara
- Fast Concurrent Growth of Ni<sub>3</sub>Sn<sub>4</sub> and Voids During Solid-State Reaction Between Sn-Rich Solder and Ni Substrates Bo-Mook Chung, Jaeho Choi, and Joo-Youl Huh
- Optical Properties and Durability of Al<sub>2</sub>O<sub>3</sub>-NiP/Al Solar Absorbers Prepared by Electroless Nickel Composite Plating T.K. Tsai, S.J. Hsueh, J.H. Lee, and J.S. Fang
- A Study on Sputtered Bi-Te Thermoelectric Films with Various Compositions: Microstructure Evolution and the Effects on Thermoelectric and Electrical Properties

  Minsub Oh, Seong-Jae Jeon, Haseok Jeon, Seungmin Hyun, and Hoo-Jeong Lee
- The Effect of Sb Addition on Sn-Based Alloys for High-Temperature Lead-Free Solders: an Investigation of the Ag-Sb-Sn System D. Li, S. Delsante, A. Watson, and G. Borzone
- 86 Thermodynamic Description of the Quaternary Ag-Cu-In-Sn System Wojciech Gierlotka
- A Study on the Breakdown Mechanism of an Electroless-Plated Ni(P) Diffusion Barrier for Cu/Sn/Cu 3D Interconnect Bonding Structures

  Byunghoon Lee, Haseok Jeon, Seong-Jae Jeon, Kee-Won Kwon, and Hoo-Jeong Lee
- A Simple Process for Synthesis of Ag Nanoparticles and Sintering of Conductive Ink for Use in Printed Electronics

  Inyu Jung, Yun Hwan Jo, Inyoung Kim, and Hyuck Mo Lee
- The Transparent Conductive Properties of Manganese-Doped Zinc Oxide Films Deposited by Chemical Bath Deposition J.S. Fang, W.H. Luo, C.H. Hsu, J.C. Yang, and T.K. Tsai
- 130 Cross-Interaction Study of Cu/Sn/Pd and Ni/Sn/Pd Sandwich Solder Joint Structures C.T. Lu, T.S. Huang, C.H. Cheng, H.W. Tseng, and C.Y. Liu
- 138 Low-Resistivity Ru-Ta-C Barriers for Cu Interconnects

  J.S. Fang, J.H. Lin, B.Y. Chen, G.S. Chen, and T.S. Chin
- Interfacial Reactions in Sn/Fe-xNi Couples
  Yee-Wen Yen, Hsien-Ming Hsiao, Shih-Wei Lin, Pin-Ju Huang, and Chiapyng Lee
- Evaluation of Diffusion Barrier Between Lead-Free Solder Systems and Thermoelectric Materials T.Y. Lin, C.N. Liao, and Albert T. Wu
- 159 Elucidating the Metal-Induced Crystallization and Diffusion Behavior of Al/a-Ge Thin Films Chao-Nan Yeh, Kewin Yang, Hsin-Yi Lee, and Albert T. Wu

- 166 Conductor Formation Through Phase Transformation in Ti-Oxide Thin Films Y.S. Liu, Y.H. Lin, Y.S. Wei, and C.Y. Liu
- 172 Ni Interdiffusion Coefficient and Activation Energy in  $Cu_6Sn_5$  Kuan-Chih Huang, Fuh-Sheng Shieu, Y.H. Hsiao, and C.Y. Liu

