

# **Komitet za termodinamiku i fazne dijagrame Srbije**

*u saradnji sa:*

Fakultetom tehničkih nauka u Kosovskoj Mitrovici,

Tehničkim fakultetom u Boru i

Associated Phase Diagram and Thermodynamics Committee  
(Poland, Czech Republic, Hungary, Bulgaria, Slovenia, Serbia,  
Montenegro, Romania, Croatia, Bosnia and Herzegovina)

## **JEDANAESTI SIMPOZIJUM O TERMODINAMICI I FAZNIM DIJAGRAMIMA**

*sa međunarodnim učešćem*



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# Jedanaesti simpozijum o termodinamici i faznim dijagramima

## Izdavač:

Fakultet Tehničkih nauka  
Kneza Miloša br.7, 38220 Kosovska  
Mitrovica  
Tel/Fax: (+381 28) 425-320 / 425-322  
office@ftn.pr.ac.rs



## Za izdavača:

**Dekan,**  
Prof. dr Srđan Jović

## Urednik:

Prof. dr Duško Minić

## Kompjuterska obrada:

Doc. dr Aleksandar Đorđević

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# **Jedanaesti simpozijum o termodinamici i faznim dijagramima**

## **Naučni odbor**

Prof. dr D. Minić, Srbija, predsednik,  
Prof. dr M. Zečević, Srbija  
Prof. dr D. Manasijević, Srbija  
Prof. dr Y. Du, Kina  
Prof. dr G. Kaptay, Mađarska  
Prof. dr J. Vreštal, Češka Republika  
Prof. dr I. Katayama, Japan  
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Prof. dr J. Medved, Slovenija  
Prof. dr J. Lamut, Slovenija  
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Doc. dr T. Holjevac Grgurić, Hrvatska  
Prof. dr D. Blečić, Crna Gora  
Prof. dr D. Ćubela, BiH  
Dr V. Ćosović, Srbija  
Dr N. Talijan, Srbija  
Prof. dr N. Štrbac, Srbija  
Dr A. Kostov, Srbija  
Dr M. Sokić, Srbija  
Dr B. Marković, Srbija

## **Organizacioni odbor**

Doc. dr. A. Đorđević, predsednik  
Prof. dr D. Minić,  
Prof. dr M. Zečević,  
Prof. dr D. Manasijević,  
Doc. dr Lj. Balanović,  
dipl. inž. J. Petrović  
dipl. inž. M. Mitrović

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## **Microstructure and thermal properties of Ag–Sb alloys**

**Dragan Manasijević, Ljubiša Balanović, Ivana Marković, Milan Gorgievski,  
Uroš Stamenković, Kristina Božinović**

*University of Belgrade, Technical Faculty in Bor, VJ 12, Bor, Serbia*

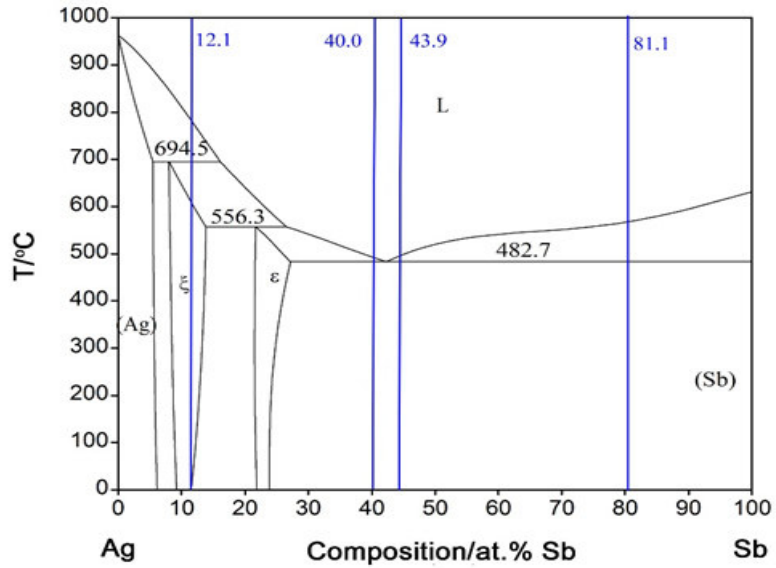
### **Abstract**

In this work, the microstructure and thermal properties of four Ag–Sb alloys with 12.1, 40.0, 43.9 and 81.1 at.% Sb were experimentally studied. The constitutive phases were investigated using scanning electron microscopy (SEM) with the energy dispersive spectroscopy (EDS). The phase transition temperatures of the investigated alloys were determined using differential scanning calorimetry (DSC) and compared with the results obtained by thermodynamic calculation. The measured temperature of the eutectic reaction was 484.1 °C. The measurement of thermal diffusion in the temperature range from 25 to 400 °C was performed using the xenon-flash method, followed by the determination of the thermal conductivity. Temperature and composition dependences of density, thermal diffusivity, specific heat capacity and thermal conductivity for solid Ag–Sb alloys were determined. Thermal conductivity of Ag–Sb alloys shows large negative deviation from a linear rule of mixing. Thermal diffusivity and thermal conductivity are the lowest for the Ag–12.1 at.% Sb alloy and gradually increase with increasing antimony content.

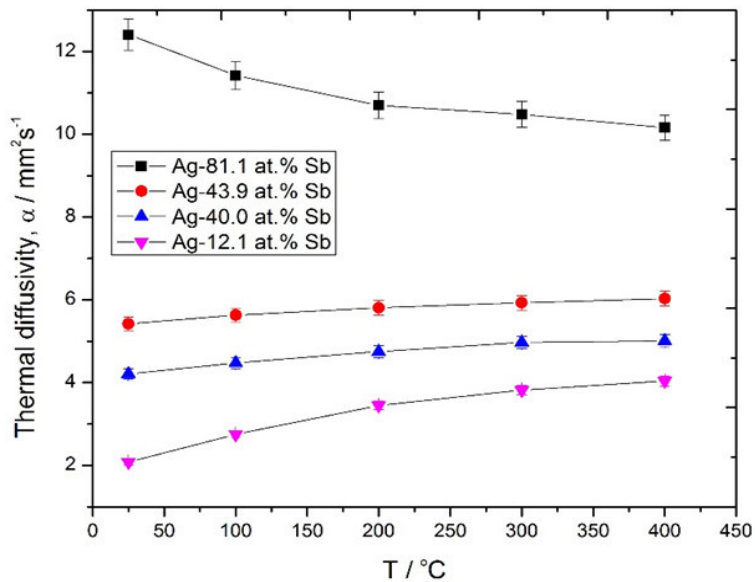
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Graphical abstract:



The phase diagram of the Ag-Sb system with marked compositions of the alloys studied in the present work.



Temperature dependence of thermal diffusivity for the studied Ag-Sb alloys.