

# High-strength aluminum composite materials strengthened with carbon nanoparticles

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# Main Fields of Scientific Research

- Disperse strengthening of aluminum alloys
- Optimization of the concentration of UDDP in aluminum alloy
- Influence of UDDP on the movement of dislocations in aluminum alloy
- Influence of UDDP on the physical-mechanical parameters of aluminum alloy

tubes of high-strength aluminum composite materials strengthened  
with carbon nanoparticles



tube of high-strength aluminum composite materials strengthened with carbon nanoparticles



# Publications

1. A. Bouzekova, S. Stavrev, A. Petrova, S. Kozarov; Disperse strengthening of high-strength aluminum composite materials; Jubilee scientific session 2001, 40 years since the first human flight into space, 12-13.04.2001; Dolna Mitropoliq, Bulgaria, pp. 58 -67
2. S. Stavrev, A. Bouzekova, L. Markov, J. Karadjov, A. Petrova; High—strength aluminum composite materials strengthened with carbon nanoparticles; Third Workshop on Nanoscience & Nanotechnology; October 2001
3. S. Stavrev, A. Bouzekova, L. Markov, J. Karadjov, A. Petrova; Synthesis of ultradisperse diamond powder from the free carbon of explosives. Research and application areas; Jubilee scientific conference “Technology, security, ecology”; VVOVU “Vasil Levski”, 21-22.06.2002, Veliko Tarnovo, Bulgaria; pp. 32-40
4. A. Bouzekova, S. Kozarov, S. Stavrev, J. Stanev; Preconditioning experiment “environment” a program for processing experimental ground; Scientific Conference “SPACE, ECOLOGY, SAFETY” with International Participation, 10–13 June 2005, Varna, Bulgaria
5. Dimova-Malinovska D., V. Grigorov, O. Angelov, A. Bouzekova, “Influence of the Precursor Materials on the Process of Aluminum Induced Crystallization of a-Si:H” In *Nanoscience and Nanotechnology*, Nanosciences & Nanotechnology IWON 2005 and 4th COSENT Annual Meeting, Belgrade, on CD, 2005. pp 67
6. A. Bouzekova, S. Kozarov, S. Stavrev; Preconditioning experiment “environment” a program for processing experimental ground; International scientific conference AMTECH 2005, University “Angel Kanchev” and Union of Scientists, Bulgaria, Ruse 10-12.11.2005; стр. 125-129
7. G. Georgiev, O. Angelov, M. Sendova-Vassileva, D. Dimova-Malinovska, A. Bouzekova, and M. Sendova, “Influence of the Precursor Materials on the Process of Aluminum Induced Crystallization of a-Si:H” In *Nanoscience and Nanotechnology*, Eds. Balabanova and Dragieva, Coronet Books, Sofia 2005.
8. Adelina Miteva, Anna Bouzekova-Penkova, Practical Applications of Some Nanostructures in Advanced Mechanical Engineering Technologies, International scientific conference AMTECH 2009, Journal “Fundamental sciences and applications”, 12-13 November 2009 Plovdiv, pp.221-226; ISSN 1310 – 8271
9. A. Bouzekova – Penkova; On some properties of nanostructures in the presence of a constant electric field, XXVI International scientific conference, 65 years faculty of machine technology, 100 birth anniversary of acad. Angel Balevski, Proceedings 13-16 September 2010, Sozopol, Bulgaria. pp. 300-306. ISBN: 978-954-438-854-6
10. A. Bouzekova-Penkova, Zaharieva, R., “First-principles and Quasi-continuum Investigations of the Material Properties of Two Systems: Dispersive-reinforced Al Alloys and Ti/H<sub>2</sub> System”, 2nd IWPMEO – Physics-based Fracture and Damage Mechanics, 15-17 May 2013, Antalya, Turkey – poster presentation