Light alloys
Aluminium, Titan und Magnesium
Fundamentals, properties and fields of application

November 7th, 2017
Bremen (Germany)
Stiftung Institut für Werkstofftechnik, University of Bremen

Seminar chair:
Dr.-Ing. Axel von Hehl

PRE-CONFERENCE SEMINAR

Scope

Weight reduction is an important subject for the automotive and aviation industry to improve the products’ energy efficiency and to reduce the CO2 emission significantly. And it also helps to increase transportation range and payload. However, effective weight reduction requires advanced lightweight designs, which are indicated by the smallest portion of the right material at the right place. This often necessitates additional materials and processing costs.

Thus, in order to find an optimum relation of weight savings and costs a multidisciplinary approach is necessary that combines designing and dimensioning with materials science and production technology. Generally, the potential of materials for weight savings can be evaluated by regarding their density specific properties. While e.g. carbon fibre reinforced polymers exhibit highest specific strength and stiffness values light alloys, such as aluminium, titanium and magnesium alloys, provide an excellent impact toughness, a good wear and thermal resistance as well as a high life cycle fatigue along with significantly lower materials and processing costs and, furthermore, an outstanding recyclability. Within this material class aluminium and magnesium alloys are characterised by a high specific bending stiffness and good compression stability. Titanium alloys are more expensive, but advantageous e.g. when a very high specific tensile strength is required.

Generally, the properties are strongly influenced by the manufacturing process. This applies to both the materials processing characteristics and its performance characteristics. Starting with a digression on metallurgical fundamentals the seminar is focused on the processing, properties of aluminium, titanium and magnesium alloys and their fields of applications in consideration of essential technological aspects (i.e. basic alloy classes, general processing routes, associated and secondary processes).

The seminar is geared to engineers and technicians in industry who are working in the areas of material processing, design and application.

Other issues

Network on European level - exchange of experiences between academic and industrial partners

For further information have a look at: www.dgm.de/fa-alu

Covering industrial and scientific topics in the area of new magnesium based materials

For further information have a look at: www.dgm.de/fa-magnesium

Science-based knowledge of structure-property-relationships in alloy systems and applications

For further information have a look at: www.dgm.de/fa-titan

Exchange between scientists and industry: Networking in working groups with similar ambitions

For further information have a look at: www.dgm.de/fa-hybride

For Further Information please contact:
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PRE-CONFERENCE SEMINAR
Introduction
Dr.-Ing. Axel von Hehl

Fundamentals
Lightweight principles, designs, selection issues
Dr.-Ing. Axel von Hehl

Structure of metals, alloys and principle strengthening mechanisms
Prof. Dr.-Ing. J. Hirsch

Titanium and titanium alloys
Basic and novel alloys, their properties
Carsten Siemers
Fields of application, case studies
Carsten Siemers

Magnesium and magnesium alloys
Basic and novel alloys, their properties
Prof. Dr.-Ing. Mirko Schaper
Fields of application, case studies
Prof. Dr.-Ing. Mirko Schaper

Aluminium and aluminium alloys
Basic and novel alloys, their properties
Prof. Dr.-Ing. J. Hirsch
Fields of application, case studies
Prof. Dr.-Ing. J. Hirsch

Subject to change without notice

Speaker

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Stiftung Institut für Werkstofftechnik, Bremen Germany

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Institut für Leichtbau mit Hybridsystemen (ILH), Paderborn University, Germany

Venue

University of Bremen
Stiftung Institut für Werkstofftechnik
Badgasteiner Str. 3
28359 Bremen, Germany

By train/plane
Bremen central station/airport: Tramway 6 (destination: “Universität”), terminus “Universität Zentralbereich”
Travel time about 15/25 min. (Taxi around 18/25 min.)

By car
Motorway 27 (direction “Bremerhaven”), exit „Horn-Lehe/ Universität”

Terms and conditions

The visit of the LightMat 2017 International Conference on Light Materials – Science and Technology (lightmat2017.dgm.de) is explicitly no prerequisite for the participation on the pre-conference seminar.

The seminar language is English, unless all participants are German native speakers.

Seminar fees

- LightMAT 2017 participant: 150 € (incl. VAT)
- Regular participant: 300 € (incl. VAT)

Seminar fees include

- The seminar participation, seminar handouts, lunch, coffee, tea and refreshments during the breaks. All participants receive a seminar certificate.

Cancelling policy

- The number of participants is limited. After registration you will receive a confirmation and invoice. 90% of the fees will be refunded if notice of cancellations received by 1st of October 2017. Afterwards we charge the whole seminar fees.
- A nomination of a replacement participant is possible. Cancellations must be made in writing.

Registration form

Please indicate your preference
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Englisch Germano preference

Your Registration:

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E-Mail: fortbildung@inventum.de
Fax: +49 (0) 2241-4930330

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