

WELCOME TO STOCKHOLM



EUROMAT 2019

EUROPEAN CONGRESS AND EXHIBITION
ON ADVANCED MATERIALS AND PROCESSES

[HTTP://EUROMAT2019.FEMS.EU/](http://EUROMAT2019.FEMS.EU/)

1-5 SEPTEMBER 2019

STOCKHOLM, SWEDEN

FEMS
FEDERATION OF EUROPEAN
MATERIALS SOCIETIES

30
1987 - 2017
www.fems.org

SfMT
THE SWEDISH SOCIETY OF MATERIALS
TECHNOLOGY

Managing Committee

Guocai Chai
Sandvik, Sandviken

Jens Bergström
Karlstad University, Karlstad

Lars Nyborg
Chalmers University of Technology, Gothenburg

Lars-Erik Lindgren
Luleå University of Technology, Luleå

Peter Åström
Swedish Society for Materials Technology, Stockholm

Sten Johansson
Linköping University, Linköping

Urban Wiklund
Uppsala University, Uppsala

Scientific Committee

Paloma Fernández Sánchez
Universidad Complutense de Madrid,
Spain

Nikolaos Michailidis
Aristotle University of Thessaloniki, Greece

Maria de Vona
University of Rome, Italy

Lars Hultman
Swedish Foundation of Strategic Research,
Sweden

Francisca Caballero
Spanish National Center for Metallurgical
Research, Spain

Johan Moverare
Linköping University, Sweden

Albano Cavaleiro
University of Coimbra, Portugal

Eric Le Bourhis
Institut P, Poitiers University, France

John Ågren
Royal Institute of Technology,
KTH, Sweden

Zhou Shaoxiong
China National Amorphous and
Nanocrystalline Engineering Center, China

Patrik Johansson
Chalmers Institute of Technology, Sweden

Aldo Boccaccini
Friedrich-Alexander-University, Germany

Håkan Engqvist
Uppsala University, Sweden

Paloma Fernández Sánchez
FEMS, Spain

Åsa Kassman
Uppsala University, Sweden

Patrice E.A. Turchie
Past President of The Minerals, Metals and
Materials Society, USA

Orlando Rios
Bredesen Center for Interdisciplinary Research
and Graduate Education, Oak Ridge National
Laboratory, USA

Chris Holland
Chair of the Natural Materials Association,
England

Eva Malmström
Royal Institute of Technology, KTH, Sweden

Susanne Norgren, Uppsala University,
Sweden

Dear colleagues



We have the honour to invite you to join your peers and subject matter experts at EUROMAT2019, to be held in Stockholm, the capital of Sweden, from 1 – 5 September, 2019.

EUROMAT is the premier international congress in the field of materials science and technology in Europe. The EUROMAT2019 congress venue will be the Stockholm City Conference Centre, www.stoccc.se, conveniently situated in the city center of Stockholm only a few minutes' walk from the Grand central station of Stockholm and the high speed train connection to Arlanda airport.

Stockholm, the capital of Sweden and Scandinavia, is probably one of the most beautiful capitals of the world and at the same time, the country of Sweden, -as everybody knows today – guarantees a very well planned and organized conference with the guests and participants in focus during a week in the late summer/beginning of fall.

Sweden has a long tradition in manufacturing and application of advanced materials. Materials Science is therefore an important field of research and technological development in Sweden with involvement of both academia and industry. Being the host for EUROMAT2019, the Swedish Society for Materials Technology (SFMT) has the vision to:

- Facilitate a programme where academia, research institutes and industry can meet and exchange ideas and provide information on the latest scientific development.
- Promote involvement of top universities and researchers in materials science including special contribution from large scale facilities like MAXIV in Lund
- Demonstrate efficient knowledge transfer between research and its application through the active involvement of research institutes on Sweden like RISE and Swerea
- Develop the involvement of Nordic countries in FEMS and EUROMAT
- Strengthen the EUROMAT2019 concept through its co-operation with Royal Academy of Engineering Sciences, The Swedish Steels Producer's Association (JERNKONTORET), National Innovation Programmes, Excellence Initiatives in Materials Science, Funding Bodies and International Partners

We look forward to seeing you in Stockholm at EUROMAT 2019

On behalf of the Scientific and Management Committees

Sten Johansson

PRESIDENT, Swedish Society for Materials Technology, SFMT

General information

Dates

1-5 September 2019

Venue

Stockholm City Conference Centre
Folkets Hus, Barnhusgatan 12-14,
111 23 Stockholm

Norra Latin,
Drottninggatan 71 b,
111 23 Stockholm

Arlanda International Airport is only 20 minutes by train north of Stockholm. The EUROMAT2019 congress venue will be the Stockholm City Conference Centre, www.stoccc.se, conveniently situated in the city center of Stockholm only a few minutes' walk from the Grand central station of Stockholm and the high speed train connection to Arlanda airport.

Currency

Swedish krona - SEK
Please note that Sweden is working towards a cash-free society and most vendors accept payment by credit card.

VISA and Passport Requirements

Participants are advised to contact the nearest embassy or consulate for information about the passport and visa requirements from their country for entry to Sweden.

Language

The official language of the Congress is English. There will be no translation facilities available for the congress participants.

Accommodation

The EUROMAT 2019 society has selected a number of hotels with special rates for Congress participants. A list of hotels along with reservation links will be available on www.euromat2019.fems.eu in due course.

Time Zone

UTC/GMT +2 hours

Registration fees

Registration fees will be available on www.euromat2019.fems.eu in due course.

Important dates

Announcement of Symposium Organizers,
May-June 2018.

Abstracts instructions available on the website,
May-June 2018

Opening of Abstract Submission and
Congress Registration,
Mid-Sep 2018

Dead-line for Abstract Submission,
January 31 2019

Evaluation of Abstracts,
March 2019

Authors Notification,
April 2019

Nomination of sessions chairs,
May 2019

Preliminary Program,
June 2019

Dead-line early bird registration,
Mid-June 2019

Final Program, August 2019,
continuously updated

EUROMAT 2019,
1-5 September 2019

Area Areas/Area leaders

Area A	Functional Materials
Area B	Structural Materials
Area C	Processing
Area D	Characterization and Modelling
Area E	Energy and Environment
Area F	Materials for Healthcare
Area G	Education, Strategy and Technology Transfer
Area H	Raw Materials
Area I	Bio-based materials

Organizing Societies



**Swedish society
For Materials
Technology**

Professional Congress Organizer



Academic Conferences
Universities in cooperation: Karolinska Institutet,
SLU and Uppsala University
Address: Box 7059, 750 07 Uppsala, Sweden
Phone +46 18 67 10 03
E-mail: EUROMAT2019@akademikonferens.se

Facts about Sweden

- The population is 10 million people
- Sweden has 95 700 lakes
- The country is 1 574 km long
- In the North, in July, the sun never sets, however, in the winter the sun never rises
- The first IKEA store started in 1958 in Stockholm. Today IKEA has 355 stores in 29 countries.



[See videos and read more about Stockholm and Sweden here!](#)

Greetings

Swedish	English
God morgon!	Good morning
God natt!	Good night
Hej!	Hello
Ja	Yes
Nej	No
Nja (nej and ja)	No and yes
Hej då!	Bye-bye
Hur mår du?	How are you? (neutral)
or Hur står det till?	How are you? (formal)
or Hur är läget?	What's up? (informal)
Bara bra, tack. Och du?	I'm fine, thanks. And you?
Tack!	Thank you/Please (depending on the context)
Varsågod!	Here you go/Please/You're welcome (depending on the context)
Talar du engelska?	Do you speak English?
Trevligt att träffas	Pleased to meet you
Ursäkta mig!	Excuse me

B7-MON-PM1-5 - Influence of protective Ni coating on SiC particles on tribological properties of coelectrodeposited Ni-SiC composite coating.

B7. Fatigue, Wear and Corrosion of Materials and Structures

Piotr Jencyk¹, Dariusz Jarzabek¹

¹ Institute of Fundamental Technological Research, Polish Academy of Sciences, Pawińskiego 58, 02-105 Warsaw, Poland

Introduction/Purpose

Improvement of mechanical properties of materials is often challenging and it requires much scientific and engineering effort. On the other hand, from the viewpoint of economy and ecology it is important to develop low-cost and repeatable technologies. One of very popular coatings techniques is electrodeposition. It is known for quite a long time, but its crucial advantage is the possibility to apply different parameters (electrolyte's composition, additives, current) and obtain wide range of materials with significantly different properties.

Methods

One of such ideas is to manufacture a composite made of metal matrix and reinforcement particles (often ceramics) by coelectrodeposition. Main advantages of this approach are better wear properties and increased hardness in comparison with pure metal of a matrix. The biggest disadvantage is the fact that ceramic particles, due to undesirable chemical reactions at their surface in the electrolyte, are usually weakly bonded with the matrix, so during a wear test they are falling out and increase wear. To avoid this problem we have proposed the solution. Before electrodeposition, thin layer of nickel is deposited on SiC particles by PVD process.

Results

Fig. 1. presents coefficient of sliding friction vs the concentration of SiC particles in the composite coating. One can see that friction decreases with increasing amount of SiC particles in the coating. Further, reduction of the friction coefficient was possible by using the SiC with the protective layer.

Conclusions

The main profit of this technique is an increased adhesion between SiC and Ni. Therefore a composite coating made of Ni and SiC particles with Ni protective layer (denoted as SiC+Ni) shows better mechanical performance – lower friction coefficient (shown on Fig.1.) and increased wear resistance – in comparison with a coating made of Ni and uncoated SiC particles (denoted as SiC). Our coatings also exhibit higher microhardness.

Selected references

- [1] D. M. Jarzabek, C. Dziekoński, W. Dera, J. Chrzanowska, T. Wojciechowski, Influence of Cu coating of SiC particles on mechanical properties of Ni/SiC co-electrodeposited composites, *Ceram. Int.* 44 (17) (2018) 21750-21758.
- [2] D. M. Jarzabek, M. Milczarek, T. Wojciechowski, C. Dziekoński, M. Chmielewski, The effect of metal coatings on the interfacial bonding strength of ceramics to copper in sintered Cu-SiC composites, *Ceram. Int.* 43 (6) (2017) 5283-5291.
- [3] D. Jarzabek, The impact of weak interfacial bonding strength on mechanical properties of metal matrix - ceramic reinforced composites, *Compos. Struct.* (2018).

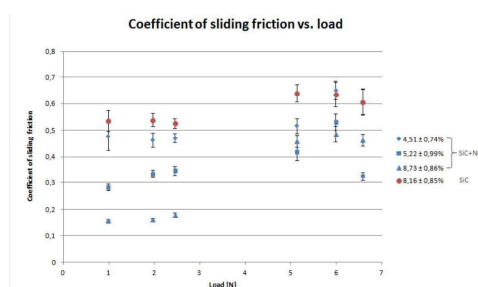


Fig. 1. Coefficient of sliding friction vs. Load in Ni-SiC composite