SFB 837 - Interaction Modeling in Mechanized Tunneling

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Detailed traveling information:
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Interchange: Bochum/Witten
Parking Site P9
Veranstaltungszentrum: Building Materials

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Mechanized tunneling is an established flexible and efficient technology for the construction of underground infrastructure, characterized by a dynamic advancement of tunnel boring technologies, increasing diameters and a broadening range of applicability. This rapid development in association with the inherent heterogeneity of the ground poses new challenges to prognosis models.

Considering this background, the subject of the Collaborative Research Center SFB 837 “Interaction Models for Mechanized Tunneling” is the research and development of models, methods and design concepts, which, when adequately interlinked, can deal with the manifold complex interactions of the components and processes involved in mechanized tunneling.

Research within the four project areas of the SFB includes the ground exploration and modeling of the ground, the tunnel boring machine, the lining and annular gap grouting, and the interactions between tunneling and existing structures. Furthermore, the cutting, advancement and logistics processes are represented using adequate models integrated by means of a consistent SFB-wide tunnel information system.

The application of steel fiber reinforced concrete for precast tunnel lining segments is increasingly gaining importance for several years. This workshop mainly aims to present and discuss recent advances and developments both within and outside the SFB 837. Furthermore its objective is to give an overview on practical experiences regarding the use of steel fiber reinforced concrete for segmental linings. In particular aspects of material, production, robustness, durability and sustainability are in the focus of the workshop.

**HYBRID LINING SEGMENTS FOR MODERN TUNNEL CONSTRUCTIONS – Intelligent use of steel fiber reinforcement**

**WORKSHOP – SEPTEMBER 18TH, 2018**

Veranstaltungszentrum, Room 1 – 9:00 - 18:00

<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
<th>Speaker</th>
<th>Institution/Affiliation</th>
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<tbody>
<tr>
<td>09:30</td>
<td>Fiber reinforced concrete: Applications and recent trends in tunneling</td>
<td>Martin Eberli</td>
<td>Bekoert Maccaferri Underground Solutions BVBA</td>
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<tr>
<td>10:00</td>
<td>Practical design of segmental lining with steel fiber reinforcement</td>
<td>Benno Ring</td>
<td>Ring – Consultancy in Tunneling</td>
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<td>10:30</td>
<td>Coffee Break</td>
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<td>11:00</td>
<td>Steel fiber reinforced concrete for tunnel segments – durability aspects, design considerations and case studies</td>
<td>Carola Edvardsen</td>
<td>COWI</td>
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<td>11:30</td>
<td>Lunch</td>
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<td>12:00</td>
<td>Tests on precast tunnel segments in concrete with newly high tensile strength steel fibers</td>
<td>Benoit de Rivaz</td>
<td>Bekoert Maccaferri Underground Solutions BVBA</td>
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<td>13:00</td>
<td>Production methods and experimental investigations on hybrid lining segments</td>
<td>Sven Plückelmann</td>
<td>Ruhr University Bochum</td>
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<td>14:30</td>
<td>Coffee Break</td>
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<tr>
<td>14:00</td>
<td>Robust design of hybrid SFRC lining segments</td>
<td>Vojtech Ernst Gall</td>
<td>Ruhr University Bochum</td>
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<td>15:00</td>
<td>Optimization based reinforcement layout for concrete elements under partial-area loading</td>
<td>Mario Smarslik</td>
<td>Ruhr University Bochum</td>
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<td>15:30</td>
<td>Social program</td>
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<td>16:30</td>
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