



# SYMPOSIUM ON SQUATS AND SQUAT-TYPE DEFECTS 2026

Graz, Austria, May 26 and 27, 2026

RCRS (Research Cluster Railway Systems), in cooperation with the ICRI (International Collaborative Research Initiative on Rolling Contact Fatigue and Wear of Rails and Wheels) is pleased to announce a **two-day symposium on Squats and Squat-type defects**. The symposium aims to bring together manufacturers, infrastructure managers, railway operators, and researchers to establish a common understanding of **Squats and Squat type defects**, exchange current developments, and discuss future challenges.

ICRI



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# Program Highlights

- State of the Art – current knowledge & open questions
- “Squat Shorts” – concise 5-10 min impulses from practice and research
- Panel and Group Discussions (10 min inputs + moderated discussion)
- Interactive Voting Session: “Theory, Fact or Disagreement”
- Presentation of current research findings and ongoing projects – from mechanisms & detection to maintenance strategies and mitigation measures

# Technical Program

Start	<b>Tuesday, May 26</b>
9:00	<b>Welcome &amp; Objectives</b>
	<b>Keynote</b>
9:30	Presenters: Richard Stock, Klaus Six, Werner Daves, Roger Lewis Input by: Katrin Mädler, Anders Ekberg, Michael Steenbergen, Eric Magel, Stuart Grassie, David Fletcher, Zili Li
10:15	Coffee Break
10:30	<b>Group Session: Operator, Industry and Academic View</b> Discussion of Keynote Topics and Beyond
12:30	
	<b>Squat Shorts</b>
13:30	Nigel Shaw / University of Sheffield / A causal analysis-based approach for understanding the research literature on rail squats and rail squat-type defects – outline and preliminary findings
13:45	Edwin Vollebregt / Vtech CMCC / Modeling of squats and studs through detailed multibody and finite element simulation
	<b>Main Sessions</b>
14:00	Ingolf Nerlich / Statistical investigation of multiple squat formation and potential root causes in the entire swiss railway normal gauge network
14:30	Coffee Break
14:45	Alexander Plotho / Graz University of Technology / Automated detection of squats by analyzing the rail surface signal
15:15	Matthias Moser / Virtual Vehicle / Which Parameters drive Squat Risk and how to quantify them?
15:45	Nii Attoh-Okine / University of Maryland / Using Visual Geometry Group Models (VGG) in Rail Defect Analysis
16:15	Closing Remarks
18:00	Evening Event

Start	<b>Wednesday, May 27</b>
9:00	<b>Introduction Day 2</b>
9:05	Werner Daves / MCL / Metallography of “Baby” Squats and developed simulation model for Squat growth
9:30	Johannes Wächter / RWTH Aachen University / A newly commissioned full-scale Rolling Contact Fatigue test rig
10:00	Coffee Break
10:15	Carsten Rasmussen / Linsinger / Possible root causes and solutions of “studs”
10:45	Luis Fernando Molina Ochoa / Metro de Medellín / Case study: "Squat/stud" type defects on a metropolitan railway
11:15	Voting Session: Theory, Fact or Disagreement  Outcomes & Roadmap (definitions, research gaps, recommendations)  Symposium Wrap-up & Networking
12:30	End of Workshop - Departure to voestalpine tour
17:30	Return from voestalpine tour to Graz

Version: 20260507



# Venue

## Technical University Graz

Rechbauerstraße 12,  
8010 Graz, Austria

### Room:

Hörsaal I (ATK1120H)

Closest Airport: Graz (GRZ)

Train every 30 - 60 min from  
Airport to Graz Main Station

Train connections to Graz from  
Vienna every hour



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