CM2003 – Tuesday June 10

8.30

Registration, coffee & exhibition

Registration will take place in the lower lobby at the main entrance (facing the tram station Chalmers at Aschebergsgatan) of the Student Union building

10.30

Opening and welcome

10.50

Keynote
J Kalousek
Wheel/rail damage and its relationship to track curvature

Opening and welcome speeches will be given by:
Björn Paulsson, Chairperson CM2003
Jan-Eric Sundgren, President Chalmers
Drewin Nieuwenhuis, General Manager, UNIFE

11.40

R Lewis, F Braghin, A Ward, S Bruni, R S Dwyer-Joyce, K Bel Knani & P Bologna: Integrating dynamics and wear modelling to predict railway wheel profile evolution

12.10

K Maedler, D Ullrich & M Luke: Rolling contact phenomena at wheels and rails observed at DB's full-scale simulation test rig

12.40

Chairperson: R Lundén
Vice chairperson: B Paulsson

All keynote and plenary sessions during the conference are held in the RunAn Lecture Hall

Lunch & Exhibition

Lunch is served in the restaurant of the Student Union building. The restaurant is located on the ground floor in the other (southern) end of the building

14.00

M Ishida, T Ban, M Takikawa & F Aoki:
Influential factors on rail/wheel friction coefficient

14.30

K Sawley, C Urban & R Walker:
The effect of hollow-worn wheels on vehicle stability in straight track

15.00

J W Ringsberg:
Shear mode growth of short surface-breaking RCF cracks

Chairperson: P J Mutton
Vice chairperson: M Luke

15.30

M Hiensch, P-O Larsson, O Nilsson, D Levy, A Kapoor, F Franklin, J Nielsen, J W Ringsberg & B L Josefson: Two-material rail development: Field test results regarding rolling contact fatigue and squeal noise behaviour

16.00

Coffee & Exhibition

Coffee and other beverages are served outside the RunAn Lecture Hall and in the exhibition space

16.40

T X Wu & D J Thompson: An investigation into rail corrugation due to micro-slip under multiple wheel/rail interactions

17.10

F Cheli, S Beretta, P Belforte, G Bucca & H Desimone:
Structural integrity analysis of a tram-way:
Load spectra and material damage

17.40

Chairperson: M Ishida
Vice chairperson: M Hiensch

CM2003 – Wednesday morning, June 11

RunAn

8.30

Keynote
P Pointner
Materials for wheels and rails –
is there a solution for the extraordinary
requirements?

9.20

R Enblom & M Berg:
Simulation of wheel profile development
due to wear – influence of disc braking and
contact environment

9.50

S Bogdanski:
Liquid solid interaction in rolling contact
fatigue cracks

10.20

Coffee & Exhibition

Chairperson: J Kalousek
Vice chairperson: B Åkesson

The parallel sessions are chaired as follows:

RunAn	Palmstedtsalen	Lilla Salen
Rolling contact fatigue	*Wear testing and simulation*	*Contact mechanics*
Chairperson: S L Grassie	Chairperson: J Kalousek	Chairperson: A Sladkowski
Vice chairperson: H-D Grohmann	Vice chairperson: U Olofsson	Vice chairperson: L V Vinnik

	Palmstedtsalen	Lilla Salen
10.40	*R Lewis & U Olofsson*: Mapping rail wear transitions	*I G Goryacheva & L V Vinnik*: Analysis of characteristics in rim-hub contact of the wheel with differential rotation
11.10	*L Deters & M Proksch*: Friction and wear testing of rail and wheel material	*N Banichuk, A Kravchuk, V Markin & V Saurin*: Variational methods in the contact problems, with application to the simulation of rail/wheel contact
11.40	*T Telliskivi & U Olofsson*: Wheel-rail wear simulation	*P Heintz & P Hansbo*: A stabilized Lagrange multiplier method for contact phenomena
12.10	*E Magel, J Kalousek & R Caldwell*: A numerical simulation of wheel/rail wear	*M Sitarz, A Sladkowski & Z Zurek*: Research of influence of surface profiles for different wheel-rail pair on distribution of contact stresses
12.40		

J Ågren & R Enblom:
Wheel damages on the Regina train
and the need for further research – a summary

S M Zakharov & I G Goryacheva:
Study of rolling contact fatigue defects
of freight car wheels

S L Grassie & B Whitney:
Rolling contact fatigue on the British railway
system: treatment

H-D Grohmann, T Schnitzer & K-O Edel:
Head checks – and further damages

CM2003 – Wednesday afternoon, June 11

	RunAn	Palmstedtsalen	Lilla Salen
14.00	*E Kabo & A Ekberg*: Material defects in rolling contact fatigue of railway wheels – the influence of defect size	*R Lewis, R S Dwyer-Joyce & J Lewis*: Wheel/rail contact isolation due to track contamination	*A M Fridberg*: Friction and oscillations of the bodies
14.30	*F Demilly, B Tulliez & T Ingouf*: Steel cleanliness and railway wheels: Control of cleanliness, impact on shatter rims, main improvements and developments	*R S Dwyer-Joyce, R Lewis, N Gao & D G Grieve*: Wear and fatigue of railway track caused by contamination, sanding and surface damage	*H Chen, M Ishida & T Nakahara*: Adhesion analysis at three-dimensional contact considering surface roughness orientation
15.00	*W Schoech & R Heyder*: Rail surface fatigue and grinding: exploring the interaction	*F Alwahdi, F J Franklin & A Kapoor*: The effect of partial slip on the wear rate of rails	*I Y Shevtsov, V L Markine & C Esveld*: Optimal design of wheel profile for railway vehicles
15.30	*Y Satoh & K Iwafuchi*: Crystal orientation analysis of serviced rail with rolling contact fatigue damage	*Bobby Gilbert, Nigel Sherratt*: The prediction of wheel profile wear	*Y Sato*: Historical study on designing Japanese rail profiles
16.00	**Coffee & Exhibition**		
16.40	**Invited lecture** *K L Johnson*: Contact mechanics & rolling contact fatigue		
17.10			

The parallel sessions are chaired as follows:

RunAn	**Palmstedtsalen**	**Lilla Salen**
Material influence on rolling contact fatigue	14-15 *Wear and contamination*	14-15 *Friction and adhesion*
Chairperson: W Schoech	Chairperson: R S Dwyer-Joyce	Chairperson: M Ishida
Vice chairperson: E Kabo	Vice chairperson: R Lewis	Vice chairperson: A Kapoor
	15-16 *Wear in operation*	15-16 *Wheel and rail design*
	Chairperson: F J Franklin	Chairperson: Y Sato
	Vice chairperson: B Gilbert	Vice chairperson: I Y Shevtsov

Chairperson: S L Grassie
Vice chairperson: A Ekberg

18.40 Buses depart from Panorama Hotel and Chalmers
19.00 Welcome reception with light buffet in the Göteborg City Hall (Börsen)

CM2003 – Thursday morning, June 12

RunAn

8.30

Keynote
S L Grassie & J Elkins
The interaction of vehicle dynamics and surface damage of rails and wheels

Chairperson: E Magel
Vice chairperson: B L Josefson

9.20

G Girsch & R Heyder:
Testing of HSH-rails in high speed tracks to minimize rail damage

9.50

P J Mutton, K J Epp, E Alvarez & M Lynch:
A review of wheel-rail interaction and component performance under high axle load conditions

The parallell sessions are chaired as follows:

RunAn	**Palmstedtsalen**	**Lilla Salen**
Contact forces	*Friction control*	*Rolling contact fatigue cracks*
Chairperson: S Bruni	Chairperson: Y Suda	Chairperson: S Bogdanski
Vice chairperson: T Ekevid	Vice chairperson: Y Berthier	Vice chairperson: J W Ringsberg

10.20

Coffee & Exhibition

	Palmstedtsalen	Lilla Salen
10.40	*O Polach*: Creep forces in simulations of traction vehicles running on adhesion limit	*Y Suda, T Iwasa, H Komine, M Tomeoka, H Nakazawa, K Matsumoto, T Nakai, M Tanimoto & Y Kishimoto*: Development of onboard friction control system	*E Lansler & E Kabo*: Sub-surface crack face displacements in railway wheels
11.10	*F Braghin, S Bruni, S Cervello, A Cigada & F Resta*: A new method for the measure of wheel-rail contact forces	*A Matsumoto, Y Sato, H Ohno, M Tomeoka, K Matsumoto, T Ogino, M Tanimoto, Y Oka & M Okano*: Improvement of bogie curving performance by using friction modifier of rail/wheel interface - verification by full-scale rolling stand test	*S Bogdanski, P Lewicki & M Szymaniak*: Experimental and theoretical investigation of the phenomenon of filling the RCF crack with liquid
11.40	*M X D Li, T Ekevid & N-E Wiberg*: An integrated vehicle-track-ground model for investigating the wheel/rail dynamic forces due to high axle loads	*S Descartes, C Desrayaud, E Niccolini & Y Berthier*: Presence and role of the 3rd body in a wheel-rail contact	*M Wallentin, H L Bjarnehed & R Lundén*: Cracks around railway wheel flats exposed to rolling contact loads and residual stresses
12.10	*J Oscarsson, P Gullers och M Wrang:* Investigations of wheel crack phenomena - Wheel-rail contact forces measured in the kHz range	*Y Suda, T Iwasa, H Komine, T Fujii, K Matsumoto, N Ubukata, T Nakai, M Tanimoto & Y Kishimoto*: The basic study on friction control between wheel and rail (experiments by test machine and scale model vehicle)	*S Bogdanski & M Trajer*: A universal finite element model of rolling contact fatigue crack
12.40			

CM2003 – Thursday afternoon, June 12

	RunAn	Palmstedtsalen	Lilla Salen
14.00	*H J de Graaf, E J J de Jong & M J van der Hoek*: GOTCHA: Compact system for measuring train weight and wheel defects	*P Nilsson*: Wheel/rail interaction – from theory to practice	*A Ghidini, S Cantini & R Roberti*: Mechanical behaviour of materials for railways solid wheels: A simplified criterion to estimate and compare RCF resistance
14.30	*S M Zakharov & I A Zharov*: Statistical criteria of wheel/rail interaction and performance based on wayside measurements	*A M Zarembski & J W Palese*: Risk based ultrasonic rail testing scheduling: practical applications in Europe and North America	*J Kristan, K Sawley, D Canadinc, K M Lee, A A Polycarpou & H Sehitoglu*: Wear and rolling contact fatigue in bainitic steel microstructures
15.00			

The parallel sessions are chaired as follows:

RunAn
Contact force measurement
Chairperson: S M Zakharov
Vice chairperson: E J J de Jong

Palmstedtsalen
Track management
Chairperson: B Paulsson
Vice chairperson: U Bergstedt

Lilla Salen
Material strength
Chairperson: J Kristan
Vice chairperson: J Ahlström

16.40 Buses depart from Panorama and Chalmers
17.00 Boat to Marstrand with refreshments
19.30 Arrival at Marstrand
20.00 Banquet
23.15 Buses to Göteborg

Useful information

The boat trip to Marstrand and the short walk to and from the banquet might be chilly so bring a warm jacket. The streets in Marstrand and the passages in the castle are laid with cobble stones. Walking shoes are recommended and do not forget your umbrella since it may rain.
Marstrand is located 45 km northwest of Göteborg. The town has existed for a long time and is mentioned in the Icelandic sagas. The 17th century castle (Carlstens fästning) sits on an island. The trip back from Marstrand will include a 5 minute ferry trip.

The banquet will be given in a medieval style. This includes that the first dish is left on the table while the main course is served. In medievial days, table-cloths were used as napkins. This tradition has been slightly “modernized” as you will see from the laying of the table.

CM2003 – Friday morning, June 13

RunAn

9.00

Keynote
R Smith:
The wheel/rail interface –
some recent accidents

Chairperson: S L Grassie
Vice chairperson: R Oswald

9.50

E A Shur & S M Trushevsky:
Physical metallurgy aspects of rolling contact fatigues of rail steels

The parallel sessions are chaired as follows:

RunAn	**Palmstedtsalen**	**Lilla Salen**
Contact phenomena	*Friction and its consequences*	*Material behaviour*
Chairperson: S Beretta	Chairperson: D Thompsson	Chairperson: J Ahlström
Vice chairperson: P Meehan	Vice chairperson: A Matsumoto	Vice chairperson: M Busquet

10.20

Coffee

10.40

RunAn	Palmstedtsalen	Lilla Salen
Y Terumichi, Y Suda, T Iwasa & K Sogabe: Experimental study on rail corrugation using new type of corrugation simulator by flexible track with elastic rail	*Y Luzhnov, V Bogdanov & A Romanova*: Physical nature and economical issues of a wheel - rail friction contact	*M Busquet, L Baillet, C Bordreuil & Y Berthier*: 3D finite element investigation on the plastic flows of railheads. Correlation with microstructural observations
11.10		
P A Meehan, W J T Daniel & T Campey: Wear-type rail corrugation prediction and prevention	*E Niccolini & Y Berthier*: Wheel-rail adhesion: Laboratory study of the role of the "natural" 3rd body on wheels of locomotives and rails	*S V Petrov, A G Saakov, L I Markashova & M L Valevich*: Critical state of a wheel working surface
11.40		
W Daves, W P Yao, W Razny, F D Fischer, P Pointner, R Stock, R Oswald & H Blumauer: Dynamical finite element analysis - a wheel in a curve and a wheel passing a crossing	*D T Eadie, M Santoro & J Kalousek*: Railway noise and the effect of top of rail liquid friction modifiers: Changes in sound and vibration spectral distributions	*J Ahlström & B Karlsson*: Fatigue behaviour of rail steel – a comparison between strain and stress controlled loading
12.10		
F Cheli, R Corradi, G Diana & A Facchinetti: Wheel-rail contact phenomena and derailment conditions in light urban vehicles	*T C Kennedy, C Way & R F Harder*: Modeling of martensite formation in railcar wheels due to Hertzian wheel slides	*S J Kwon, Y Ito, K Ogawa & T Shoji*: Dynamic fracture toughness and Charpy impact properties of wheel and axle materials for high speed train
12.40		

CM2003 – Friday afternoon, June 13

	RunAn	Palmstedtsalen	Lilla Salen
14.00	*K Sawley & H Wu*: The formation of hollow-worn wheels and their effect on wheel/rail interaction	*A Bernasconi, P Davoli, M Filippini & S Foletti*: An integrated approach to rolling contact sub surface fatigue assessment of railway wheels	*S V Petrov & A G Saakov*: Plasma high-speed surface hardening of wheelsets
14.30	*S L Grassie*: Rail corrugation: developments in control, measurement and understanding	*N N Berendeyev, A K Lyubimov & V L Markine*: Maximation of rail resource under high cycle fatigue loading	*F J Franklin, G-J Weeda, A Kapoor & E J M Hiensch*: Rolling contact fatigue and wear behaviour of the InfraStar two-material rail
15.00	*P Cassidy*: Non-periodic wheel out of roundness and microstructural inhomogenity	*A Ekberg & E Kabo*: Rolling contact and thermal fatigue of railway wheels and rails – an overview	*S Niederhauser & B Karlsson*: Comparison of fatigue behaviour of Co-Cr laser cladded steel plates for railway applications
15.30	**Closure** *B Paulsson & R Lundén*		
16.00	**Coffee**		
16.30			

The parallel sessions are chaired as follows:

RunAn	**Palmstedtsalen**	**Lilla Salen**
Wear and its consequences	*Rolling contact fatigue*	*Material treatment*
Chairperson: J C O Nielsen	Chairperson: A Bernasconi	Chairperson: B Karlsson
Vice chairperson: P Cassidy	Vice chairperson: V Markine	Vice chairperson: T Ekevid

Useful information

To get to the airport at Landvetter, you can catch the airport bus at Korsvägen. Take tram 6 or 8 from Chalmers to Korsvägen. It will take you about 5 minutes (check time table at the tram stop). See www.flygbussarna.se for information about the airport buses.

Recommended taxi companies:
Taxikurir 031- 27 27 27
Taxi Göteborg 031 - 65 00 00
All taxis should have a Taxi Sign (lit up when available), taxameter and price information on the side window. Most companies have a fixed price to the airport so ask for this (about 300 SEK, credit cards are accepted)