40 Years of Roller Integrated Continuous Compaction Control (CCC)
Anniversary Symposium & Exhibition

November 29th, 2018
Vienna, Austria

Chairmen:
Prof. D. Adam | TU Wien
Prof. S. Larsson | KTH Stockholm

House of Engineers
Eschenbachgasse 9/11
A-1010 Vienna
Austria

In 1978 the first CCC system was patented. Since then 40 years have passed, in which not only CCC has been established in geotechnical engineering worldwide, but has also significantly influenced the development of rollers to high tech devices. We will review the past four decades together with renowned international experts and take a look into the future. The anniversary symposium offers a platform for geotechnical engineers from all over the world to exchange experience and developments in dynamic roller compaction and compaction control.

The symposium is connected with a fine exhibition at the venue. The leading roller manufacturers Bomag, Dynapac, Hamm, Ammann and Caterpillar as well as the CDC compaction company Cofra and, moreover, the developers of compaction control devices Anix and ZORN INSTRUMENTS will present their products and prepare short techno-commercial presentations.

Patronage

Non-financial Co-Sponsors

TU Wien
KTH Stockholm

Exhibitors and Sponsors of the Anniversary Symposium
07:15 Registration & Welcome Coffee

08:15 Opening Ceremony & Welcome Address
Chair: D. Adam
H. Brandl, President of ÖIAV
M. Manassero, Vice-President for Europe of ISSMGE
H.F. Schweiger, President of ASSMGE

08:30 "Pioneers’ Session” – Historic Review from Scandinavia and Central Europe
Chair: S. Larsson
The first steps in CCC
Á. Sandström | Geodynamics AB, Stockholm, Sweden
Development and improvement of a roller mounted compaction meter in Sweden in the 70’s and 80’s
F. Åkesson | Dynapac Compaction Equipment AB, Karlskrona, Sweden
CCC milestones in Central Europe
D. Adam | TU Wien, Vienna, Austria

09:00 Invited Lectures (I)
Chair: R. Massarsch
Schwingungstechnische Grundlagen der FVDK | Vibration basics of CCC
W. Kräber | Hochschule Koblenz, Germany
Automatic compaction control: an application of the theory of nonlinear vibrations
R. Anderegg | Fachhochschule Nordwestschweiz FHNW, Switzerland

09:40 Coffee Break & Exhibition

10:10 Invited Lectures (II)
Chair: C. Wersäll
Derivation of the permissible spatial variation of CCC data from the requirements for driving comfort
J. Grabe, A. Hagmann | TU Hamburg, Germany
How can the use of CCC influence our understanding of soil behaviour during compaction?
A. Petkovšek, M. Maček | University of Ljubljana, Slovenia
Extended 2nd Proctor Lecture: Compaction improvements from an industry 4.0 perspective
A. Correia | University of Minho, Guimarães, Portugal

11:10 Company Techno-commercial Presentations
Bomag GmbH
Dynapac Compaction Equipment AB
Hamm AG
Ammann Group Holding AG
Caterpillar Inc.
Anix GmbH
ZORN INSTRUMENTS GmbH & Co. KG

12:20 Light Lunch Buffet & Exhibition

13:30 Session (I) – Application | Interpretation | Implementation of CCC
Chair: J. Pistrol
Continuous Compaction Control – CCC applications and interpretation of measurements
H.J. Kloubert | BOMAG GmbH, Boppard, Germany
Intelligent Compaction Measurement Values – A systematic classification
G.K. Chang | Transtec Group and IICTG, Austin, USA
G. Xu | Southwest Jiaotong University and IICTG, Sichuan, China
Evaluation of weak spots in geotechnics in terms of size, distribution and relevance
B. Hansmann, G. Bräu | Technical University of Munich, Germany
Institutional challenges and opportunities in implementation of Continuous Compaction Control
S. Nazarian | The University of Texas at El Paso, USA
M. Mazar | California State University, Los Angeles, USA
C. Tirado | The University of Texas at El Paso, USA
J. Si | Texas Department of Transportation, Austin, USA
Discussion
Intelligent Compaction implementation in US – Issues and solutions
G.K. Chang | Transtec Group and IICTG, Austin, USA
M. Arasteh | US Federal Highway Administration and IICTG, Baltimore, USA
Progress towards implementation of CCC in the UK
M.G. Winter | TRL Limited, Edinburgh, United Kingdom
Construction of the Istanbul new third airport by application of the CCC method in earthworks QA/QC
C. Hotz | Arcadis Germany GmbH, Darmstadt, Germany
H.J. Kloubert | BOMAG GmbH, Boppard, Germany
Influence of vibratory compaction on slope stability ongoing research in Norway
J. Johansson | Norwegian Geotechnical Institute, Oslo, Norway
J.-S. L’Heureux | Norwegian Geotechnical Institute, Trondheim, Norway
Discussion

15:30 Coffee Break & Exhibition

16:00 Session (II) – Research & Development I
Novel Compaction Techniques
Chair: J. Grabe
Roller compaction of rock-fill with automatic frequency control
C. Wersäll | KTH Stockholm, Sweden
I. Nordfeldt | Dynapac Compaction Equipment AB, Karlskrona, Sweden
S. Larsson | KTH Stockholm, Sweden
Innovative measurements of the roller-soil-interaction system during dynamic compaction
F. Kopf | FCP - Fichtschi Chiari & Partner ZT GmbH, Vienna, Austria
M. Fritz | VCE – Vienna Consulting Engineers ZT GmbH, Austria
J. Pistrol, D. Adam | TU Wien, Vienna, Austria
Measuring soil compaction on dynamic compaction technologies – Field tests and laboratory investigations using the PIV method
A. Knut, R.E. Ocaña Atencio, H. Pankrath, R. Thiele | Leipzig University of Applied Sciences, Leipzig, Germany
M. Beitzelschmidt | Technische Universität Dresden, Germany
Numerical simulation of soil compaction with dynamically excited rollers
P. Erdmann | IE, Ingenieurbüro für Berechnung, Entwicklung und Konstruktion, Emmelshausen, Germany
Discussion
CCC with oscillating rollers – Fundamentals and application in experimental field tests
J. Pistrol, D. Adam | TU Wien, Vienna, Austria
F. Kopf | FCP - Fichtschi Chiari & Partner ZT GmbH, Vienna, Austria
W. Völkel | HAMM AG, Tirschenreuth, Germany
Analytical modelling of the motion of an oscillating roller during soil compaction assuming pure rolling contact
I. Paulmichl, C. Adam | UIBK, Innsbruck, Austria
D. Adam | TU Wien, Vienna, Austria
W. Völkel | HAMM AG, Tirschenreuth, Germany
Vibratory plate resonance compaction
K.R. Massarsch | Geo Risk & Vibration Scandinavia AB, Stockholm, Sweden
C. Wersäll | KTH Stockholm, Sweden
Spatial Compaction Control: Soil type detection by means of artificial intelligence for boom mounted compactors
U. Nohlen, R. Popeika | Maschinen technik Schr ode AG, Hayingen, Germany
Y. Berguin | Eberhard Karls Universität Tübingen, Germany
Discussion

18:00 Reports (IICTG and ISSMGE TC 202) and ICE Publishing

18:15 Get-Together in the Exhibition Hall

19:30 Gala Dinner on the Occasion of 40 Years of CCC