# Tenth International Conference on the Analytic Element Method, June 4 and June 5, 2022, Princeton

**Website: the conference schedule and other information will be maintained at the website:** *aem2022.ce.umn.edu*

Presentations are 40 minutes long, followed by 10 minutes of discussion.

## Day 1, Saturday, June 4 - Morning Sessions

8:30-8:31 **Otto D.L. Strack** Welcome

**Session 1: Analytic Solutions**

Chairs: Steve Kraemer and Otto Strack

- 8:31-9:10 **Erik Anderson**: Design of Horizontal Wells for Bank Filtration and Seepage Control// Part I Aquifer-Stream Interaction

- 9:10-9:20 Discussion

- 9:20-10:00 **Erik Anderson**: Part II Aquifer-Well Interaction

- 10:00-10:10 Discussion

- 10:10-10:40 Break

- 10:40-11:20 **Mark Bakker and Erik Anderson**: Conformal mapping solution of flow across a fault using wells and the method of images

- 11:20-11:30 Discussion

- 11:30-12:10 **Anvar Kacimov and Yurii Obnosov**: Analytical models for saturated seepage from a non-flat ponded soil surface towards systematic and solitary drains (line sinks)

- 12:10-12:20 Discussion

**12:20-13:30 Lunch**

## Day 1, Saturday, June 4, 2022 - Afternoon Sessions

**Session 2: Modeling Time-Varying Groundwater Flow Using Analytic Elements**

Chairs: Randal Barnes and Henk Haitjema

- 13:30-14:10 **Mark Bakker**: Pathline tracing in transient flow: the effect of changes in storage

- 14:10-14:20 Discussion

- 14:20-15:00 **Huite Bootsma**: QGIS: a natural partner for analytic element modeling

- 15:00-15:10 Discussion

- 15:10-15:40 Break

- 15:40-16:20 **Daniel Abrams**: Using analytic element models, hand calculations, and time-series to honor data complexity in a regional MODFLOW model through scenario analysis

- 16:20-16:30 Discussion

### Session 3: New Applications of Analytic Elements

- 16:30-17:10 **Otto Strack and Erik Toller** A Linearly Elastic Model for a Large Number of Intersecting Cracks Under Plane Strain

- 17:10-17:20 Discussion

### 17:20: Break for Dinner

## Day 2, Sunday, June 5, 2020 - Morning Sessions

### Session 3 (continued): New Applications of Analytic Elements

Chairs: Mark Bakker and Erik Anderson

- 8:30-9:10 **Erik Toller**: Application of the Analytic Element Method for Modeling Flow around Tunnels

- 9:10-9:20 Discussion

- 9:20-10:00 **Erik Toller**: An Analytic Element Model for Intersecting and Heterogeneous Fractures

- 10:00-10:10 Discussion

- 10:10-10:40 Break

- 10:40-11:20 **Anvar Kacimov and Georg Houben**: Axisymmetric flow in non-phreatic aquifers to unconventional wells: the Gauss torus and Weber disk revisited

- 11:20-11:30 Discussion

- 11:30-12:10 **Wim de Lange**: On the application of analytic-based expressions for advective transport phenomena in modeling

- 12:10-12:20 Discussion

### 12:20-13:30 Lunch

### Day 2, Sunday, June 5, 2022 - Afternoon Sessions

**Session 4: Applications of Conformal Mapping**

- 13:30-14:10 **Erik Anderson**: Seawater Intrusion in Unconfined Aquifers Caused by Sea-Level Rise: A Reduced Order Model

- 14:10-14:20 Discussion

- 14:20-15:00 **Otto Strack**: Unconfined Groundwater Flow To Gravity Retaining Walls, Part I, Unconfined Flow

- 15:00-15:10 Discussion

- 15:10-15:40 Break

- 15:40-16:20 **Otto Strack**: Saturated Groundwater Flow To Gravity Retaining Walls, Part II, Saturated Flow

- 16:20-16:30 Discussion

**16:30-17:00 General Discussion; Moderator: Henk Haitjema**

**17:00 Break for Dinner**

### Conference proceedings

**Conference proceedings will be made available to participants in electronic form, and include extended abstracts, and, with permission of the authors, the presentation slides in pdf form. The presentations will be e-mailed to the participants after the conference.**

## Committees

### Organizational committee

- **Otto Strack (chair)**
- **Randal Barnes**
- **Henk Haitjema**

### Technical committee

- **Erik Anderson**
- **Randal Barnes**
- **Henk Haitjema**
- **Otto Strack**