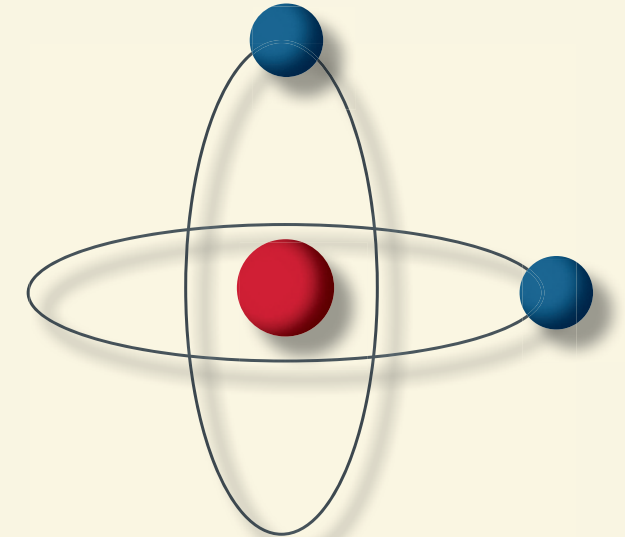


# program



July 2012 | information subject to change without notice

## Aalborg, Denmark, August 1 - 4, 2012

Aalborg University and  
Aalborg Hospital, Århus University,  
Aalborg, Denmark

[www.esm2012.com](http://www.esm2012.com)

art.  
science



## Overview

### Wednesday, August 1

**Site:** Aalborg University, Center for Sensory-Motor Interaction  
Registration for Workshop attendees 7:45 – 8:45  
Tour of the Labs 8:45 – 10:00  
novel Workshops 10:00 – 12:00, 14:00 - 16:25  
Scandinavian companies - Presentations to participants 12:00 - 13:00  
**Site:** Kunsten, Museum of Modern Art Aalborg  
Registration 17:30 – 20:00  
Opening Reception 18:00 – 20:00  
Tour Museum, Music by Helle Lund Trio

### Thursday, August 2

**Site:** Utzon Center  
Registration 7:30 - 8:40  
Scientific presentations and poster sessions 8:40  
**Site:** Prinses Juliana boat  
Dinner 19:00

### Friday, August 3

**Site:** Rebild  
Bus departure from the Radisson Blu Hotel 7:30  
Networking Day: sport activities  
Bus Departure from Rebild 16:30  
**Site:** Nordkraft and Kunsthal Nord  
Dinner and Exhibition 19:00

### Saturday, August 4

**Site:** Utzon Center  
Scientific presentations 8:30  
MPP Award Presentations 16:10  
**Site:** Utzon Center  
Banquet Dinner, Music and Award Presentations 19:00  
Music by Henriette Gärtner and Henriette Kastrup Quintet

## Venue

### Aalborg University

• Workshops, Lab Tours  
Dept. of Health Science and Technology  
Fredrik-Bajers-Vej 7A  
9220 Aalborg, Denmark  
tel: +45 99 40 88 29  
[www.hst.aau.dk](http://www.hst.aau.dk)

### Utzon Center

• Conference/Presentations  
• Banquet Dinner  
Slotspladsen 4  
9000 Aalborg  
tel: +45 76 90 50 00  
[www.utzoncenter.dk/en/welcome.htm](http://www.utzoncenter.dk/en/welcome.htm)

## Sponsors

### Aalborg University

Aalborg, Denmark  
[www.en.aau.dk](http://www.en.aau.dk)

### Faculty of Medicine, AAU

[www.medicine.aau.dk](http://www.medicine.aau.dk)

### Department of Health Science and Technology, AAU

[www.hst.aau.dk](http://www.hst.aau.dk)

### Eir - Empowering Industry and Research, AAU

[www.eirbusinesspark.com](http://www.eirbusinesspark.com)

### novel gmbh

Munich, Germany  
[www.novel.de](http://www.novel.de)



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|---------------|--|
| 12:10 - 12:20 | Comparison of plantar pressure and shape changes of the foot between normal walking and walking with lifted swinging leg<br><i>Fritz B., Knorr L., Grau S.</i>   |
| 12:20 - 12:30 | Does foot type affect stress distribution in the first metatarsophalangeal joint?<br><i>Mootanah R., Truchetet A., Rao S., Chapman C., Regatte R.R., Hillstrom H.J.</i>  |
| 12:30 - 13:40 | <b>Lunch, Utzon Café og Restaurant at Utzon Center</b>   |
| 13:40 - 14:20 | <b>KEYNOTE LECTURE 4</b><br>The rise of meaningfulness – or what to do when complexity surpasses human intelligence<br><i>Anne Skare Nielsen, future navigator</i>   |
| 14:20 - 15:10 | <b>SESSION 7 Diabetes</b><br>Chair: <i>Kersting U.G. &amp; Abboud R.J.</i>   |
| 14:20 - 14:30 | The effectiveness of offloading-improved custom footwear on plantar foot ulcer recurrence in diabetes: a multicenter RCT<br><i>Bus S.A., Arts M.L.J., Waaijman R., de Haart M., Busch-Westbroek T., van Baal S.G., Nollet F.</i> |
| 14:30 - 14:40 | Influence of physical therapy intervention on foot rollover process during gait of diabetic neuropathic patients<br><i>Sartor C.D., Watari R., Passaro A.C., Picon A.P., Vilibor R.H.H., Sacco I.C.N.</i>                        |
| 14:40 - 14:50 | The effect of strengthening exercises on gait biomechanics in patients with diabetic peripheral neuropathy<br><i>Meana-Esteban A., Price P., van Deursen R.W.M.</i>  |
| 14:50 - 15:00 | Midsole geometry affects plantar pressure pattern during walking in diabetic footwear<br><i>Braunstein B., Preece S., Chapman J., Hoehne A., Nester C., Brüggemann G.-P.</i>   |
| 15:00 - 15:10 | Plantar pressure during gait in diabetic neuropathy: effect of severity degree classified by a fuzzy expert model<br><i>Sacco I.C.N., Hamamoto A.N., Watari R., Tonicelli L., Sartor C.D., Ortega N.R.S.</i>                     |
| 15:10 - 15:30 | <b>Coffee</b>  |
| 15:30 - 16:10 | <b>SESSION 8 Exercise and Loading</b><br>Chair: <i>Sacco I.C.N. &amp; Brüggemann G.-P.</i>   |
| 15:30 - 15:40 | Influence of muscle forces on load distribution in the knee<br><i>Potthast W., Engel K., Heinrich K., Dargel J., Brüggemann G.-P.</i>  |
| 15:40 - 15:50 | Squat movement quality quantified by plantar pressure distribution in patients following total hip arthroplasty<br><i>Brauner T., Zillober M., Rämisch E., Horstmann T.</i>  |
| 15:50 - 16:00 | Force and plantar contact area characteristics during push-off in cross-country skiing<br><i>Korvas P., Hellebrandt V., Zvonar M.</i>  |
| 16:00 - 16:10 | Relationship between muscle size and toe flexor strength<br><i>Mickle K.J., Angin S., Crofts G., Nester C.J.</i>   |
| 16:10 - 17:10 | <b>MPP Award Presentations</b>   |
| 17:10         | <b>Closing remarks</b> , Peter Seitz, Uwe Kersting   |
| 19:00         | <b>Evening Event</b><br>Utzon Center<br>Banquet Dinner<br>Music by Henriette Gärtner and Henriette Kastrup Quintet<br>Award Presentations  |

## Friday, August 3rd 2012

|                |  |
|----------------|--|
|                | <b>Networking day and sport activities in Rebild</b>   |
| 07:30<br>16:30 | Pickup from the Radisson Blu Hotel Aalborg (bus departure) 7:30<br>Bus Departure from Rebild |
| 19:00          | <b>Dinner at Azzurra, Nordkraft, Aalborg</b><br>Exhibition at Kunsthal Nord                  |

## Saturday, August 4th 2012

|               |  |
|---------------|--|
| 08:30 - 09:15 | <b>KEYNOTE LECTURE 3</b><br>Pressure measurement in pressured tissues: new perspectives in cancer research<br><i>Julie Steele, University of Wollongong</i>  |
| 9:15 - 10:15  | <b>SESSION 5 Modulation of Gait</b><br>Chair: <i>Wunderlich R. &amp; Giacomozzi C.</i>   |
| 9:15 - 9:25   | Relationships of selected parameters of gait towards the laterality of lower extremities<br><i>Kolarova K., Zvonar M., Pavlik J., Hrebickova S.</i>  |
| 9:25 - 9:35   | Plantar pressure distribution in Indian people walking with varied extent of footwear use<br><i>Mullerpatan R.P.</i>   |
| 9:35 - 9:45   | Longitudinal study of changes in footstep force distribution during pregnancy<br><i>Cernekova M., Hlavacek P., Naplavova E., Kutalkova E.</i>  |
| 9:45 - 9:55   | How early can the child's foot type be detected? Retrospective analysis of longitudinally assessed arch index values<br><i>Rosenbaum D., Bosch K.</i>  |
| 9:55 - 10:05  | Cross-sectional comparison of selected gait characteristics of women of different age<br><i>Korvas P., Musil R., Dosla J., Cacek J.</i>  |
| 10:05 - 10:15 | Does genu valgum and/or flat foot play a role in dynamic plantar pressures and static footprints<br><i>Bernecker R., Weghuber D., Landauer F., Huber G., Wicker A.</i>   |
| 10:15 - 10:55 | <b>Coffee</b>  |
| 10:55 - 12:30 | <b>SESSION 6 art in science award Finalists II Methods II</b><br>Chair: <i>Morlock M. &amp; de Zee M.</i>  |
| 10:55 - 11:20 | <b>art in science award finalist</b><br>The effects of foot type and heritability on balance and plantar pressure distribution in female twins aged 18-35 years old<br><i>Mimar R., Shakibi B., Sadeghi H., Shakibi V.</i> |
| 11:20 - 11:45 | <b>art in science award finalist</b><br>Correlation of the golf handicap and the applied pressure values at the grasp of a golf club during teeing off<br><i>Lehner S., Senner V.</i>                                      |
| 11:45 - 12:10 | <b>art in science award finalist</b><br>Cycling & impotency: the way forward!<br><i>Cotton N.I., Arnold G.P., Nasir S., Wang W., Khan F., Abboud R.J.</i>  |

# ESM 2012 Program / Presentations

Welcome to ESM!

## Wednesday, August 1st 2012

|                            |   |
|----------------------------|---|
| 7:30<br><b>7:45 - 8:45</b> | <b>Transportation to the Workshops</b> (at SMI) from Hotel Radisson Blu<br><b>Registration for the Workshop attendees</b><br>at Center for Sensory-Motor Interaction, Aalborg University                    |
| 08:45 - 10:00              | <b>novel Workshops at Center for Sensory-Motor Interaction</b><br>Tour around the Labs at SMI, Center for Sensory-Motor Interaction (tour will be repeated in parallel to the workshops at 10:00 and 14:00) |
| 10:00 - 11:00              | <b>Workshop I:</b> Basics of load distribution measurement (physics and biomechanics)   |
| 11:00 - 12:00              | <b>Workshop II:</b> Evaluation of load distribution data  |
| 12:00 - 13:00              | <b>Scandinavian companies - Presentations to participants</b>   |
| <b>13:00 - 14:00</b>       | <b>Lunch at Atrium</b>  |
| 14:00 - 14:45              | <b>Workshop III:</b> pedar applications in sports and rehabilitation  |
| 14:45 - 15:30              | <b>Workshop IV:</b> pliance applications on hands, braces and seats   |
| 15:30 - 16:15              | <b>Workshop V:</b> setup and trouble shooting for novel systems   |
| 16:30                      | <b>Transportation from the Workshops</b> (at SMI) to Hotel Radisson Blu   |
| 17:30 - 20:00              | <b>Registration at Kunsten, Museum of Modern Art Aalborg</b>  |
| <b>18:00</b>               | <b>Opening Reception at Kunsten, Museum of Modern Art Aalborg</b><br>Hors d'oeuvres and drinks<br>Welcome by Helle Frederiksen, Kim Dremstrup<br>Music by Helle Lund Trio, Tour Museum                      |

## Thursday, August 2nd 2012

|                      |   |
|----------------------|---|
| 7:30 – 8:40          | <b>Registration at Utzon Center</b>   |
| <b>8:30</b>          | <b>Welcome</b><br><i>Uwe Kersting, ESM 2012 Host, Peter Seitz, novel GmbH</i>   |
| <b>08:40 - 09:25</b> | <b>KEYNOTE LECTURE 1</b><br><b>Sensory feedback during normal and spastic human walking</b><br><i>Thomas Sinkjær, Aalborg University SMI and Danish National Research Foundation</i>                |
| <b>9:25 – 10:05</b>  | <b>SESSION 1 Orthotics</b><br>Chair: <i>Mickle K.J. &amp; Rosenbaum D.</i>  |
| 9:25 - 9:35          | <b>Using pressure measurement technology in the development of a new orthotic device</b><br><i>McLaughlin P.</i>  |
| 9:35 - 9:45          | <b>Relationship between weight, activity level, insole changes and plantar pressures</b><br><i>Requena-Martinez A., Morey-Klapsing G., Aran-Ais F., Penarrocha-Fernandez H., Montiel-Parreno E.</i> |
| 9:45 - 9:55          | <b>Effectiveness of gait in cp-children – a pilot investigation</b><br><i>Bosch K., Wühr J., Hafkemeyer U.</i>  |
| 9:55 - 10:05         | <b>Different plantar pressure distribution images in children with cerebral palsy</b><br><i>Patlatov A.A., Tartakovskiy V.N., Tsvetkova T.L.</i>  |

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| <b>10:05 - 11:00</b> | <b>Poster Session 1 &amp; Coffee</b><br>Chair: <i>Mrachacz-Kersting N. &amp; Bus S.</i>  |
|                      | <b>Fracture analysis of vertebra with finite element method and compare it with experimental data</b><br><i>Behforootan S., Kasra M.</i>   |
|                      | <b>The effect of weight-bearing exercise and calcium supplementation on the tibia geometry and mechanical strength</b><br><i>Dabidi-Roshan V., Hosseinzadeh M., Eslami M.</i>  |
|                      | <b>Apply time series modeling in gait kinematic analysis during slips</b><br><i>Hu X., Qu X.</i>   |
|                      | <b>Plantar pressure distribution of different foot models during cutting movements</b><br><i>Lehner S., Diebl C., Chang D., Senner V.</i>  |
|                      | <b>Comparison of gait stages in women of different age</b><br><i>Musil R., Sebera M., Senkyr J., Pavlik J., Michalek J.</i>  |
|                      | <b>Can orthoses and navicular drop affect foot motion pattern during running?</b><br><i>Eslami M., Dabidi-Roshan V.</i>  |
|                      | <b>On the effectiveness of the newly devised ergonomic chair with chest support by evaluation of muscle activity and contact load</b><br><i>Won B.H., Kim J.H., Lim S.Y., Hong J.S., Chun K.J.</i>   |
|                      | <b>The influence of heel height and of construction of the heel on plantar pressure</b><br><i>Foltynova B., Cernekova M., Hlavacek P.</i>  |
|                      | <b>Effective combination of new bone substitute and screws in the jail technique: a biomechanical study of tibial depression fractures</b><br><i>Doht S., Lehnert T., Frey S., Fehske K., Jansen H., Blunk T., Meffert R.H.</i>              |
|                      | <b>Body pressure measuring device for the prevention against bedsores</b><br><i>Koo D., Jang K., Lee K.</i>  |
|                      | <b>Comparison of the contact area of sole and surface in combative sports using pedar</b><br><i>Musil R., Senkyr J., Zvonar M., Reguli Z.</i>  |
|                      | <b>Laterality and skating techniques in cross-country skiing</b><br><i>Jandova S., Charousek J.</i>  |
|                      | <b>Analysis of gait balance characteristics in old hemiplegia patients for development of rehabilitation training system</b><br><i>Choi H., Lee B., Lim D., Ko J., Song L., Chun K.</i>  |
|                      | <b>Yes, we can ... influence foot loading patterns by deliberately walking with in-toeing or out-toeing gait modifications</b><br><i>Rosenbaum D.</i>  |
|                      | <b>Are there any relevant pedobarographic changes below the metatarsals after hallux valgus surgery? A series of lapidus arthrodesis and associated metatarsal osteotomies</b><br><i>Dietze A., Michel A., Mittlmeier T.</i>                 |
| <b>11:00 – 12:00</b> | <b>SESSION 2 Clinical Application</b><br>Chair: <i>Hillstrom H. &amp; Madeleine P.</i>   |
| 11:00 - 11:10        | <b>Do significant changes in foot geometry take place in multiple sclerosis patients with different neurological status?</b><br><i>Tsvetkova T.L., Stolyarov I.D., Petrov A.M., Ilves A.G., Prakhova L.N., Nikiforova I.G., Lebedev V.V.</i> |
| 11:10 - 11:20        | <b>Glucocorticoid medication reduces metacarpophalangeal joint stiffness in patients affected by rheumatoid arthritis</b><br><i>Fröhlich A., Taylor W.R., Buttgerit F., Ehrig R.M., Witaschek T., Duda G.N.</i>                              |

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| 11:20 - 11:30        | <b>Clinical relevance of anatomy-based plantar pressure analysis in clubfoot</b><br><i>Stebbins J., Giacomozzi C.</i>  |
| 11:30 - 11:40        | <b>Deficits in forward propulsion remain 2-5 years after unilateral achilles tendon rupture</b><br><i>Agres A.N., Taylor W.R., Gehlen T., Duda G.N., Manegold S.</i>   |
| 11:40 - 11:50        | <b>Investigation of human-structure dynamic interaction using biomechanical model</b><br><i>Dang H.V., Zivanovic S.</i>  |
| 11:50 - 12:00        | <b>A discriminant analysis to distinguish planus, rectus and cavus foot types</b><br><i>Hillstrom H.J., Song J., Mootanah R., Rao S., Kraszewski A.P., Hafer J.F., Backus S., Deland J.</i>  |
| <b>12:00 - 13:10</b> | <b>Lunch, Utzon Café og Restaurant at Utzon Center</b>   |
| <b>13:10 - 14:45</b> | <b>SESSION 3 art in science award Finalists I Methods I</b><br>Chair: <i>Stebbins J. &amp; Bochdansky T.</i>   |
| 13:10 - 13:35        | <b>art in science award finalist</b><br><b>Intraarticular force distribution in the femorotibial joint is related to knee adduction moment and knee flexion</b><br><i>Engel K., Brüggemann G.-P., Heinrich K., Rembitzki I.V., Liebau C.</i> |
| 13:35 - 14:00        | <b>art in science award finalist</b><br><b>Prognostic factors in the causation of recurrent plantar ulceration in patients with diabetes</b><br><i>Waaijman R., de Haart M., Arts M.L.J., Wever D., Verlouw A., Nollef F., Bus S.A.</i>      |
| 14:00 - 14:25        | <b>art in science award finalist</b><br><b>Changes in COP displacement with the use of a foot drop stimulator in individuals with stroke</b><br><i>Nolan K.J., Yarossi M.</i>  |
| 14:25 - 14:35        | <b>From 2006 to 2012: relevant steps and changes in plantar pressure measurement</b><br><i>Giacomozzi C.</i>   |
| 14:35 - 14:45        | <b>The IMAR 3D-force system: Have we cracked it?</b><br><i>Arnold G.P., Abboud R.J.</i>  |
| <b>14:45 - 15:40</b> | <b>Poster Session 2 &amp; Coffee</b><br>Chairs: <i>Nolan K. &amp; van Deursen R.</i>   |
|                      | <b>Computational modeling of ergometer rowing</b><br><i>Juliussen R., Aagaard P., de Zee M., Rasmussen J., Simonsen E.B., Vinther A., Alkjær T.</i>  |
|                      | <b>Relationship between pressure and vertical force related variables in different running shoe construction technologies</b><br><i>Dinato R.C., Pereira I.L.R., Butugan K., Ribeiro A.P., Onodera A.N., Sacco I.C.N.</i>                    |
|                      | <b>Pedobarographical findings after operative ankle fracture treatment preliminary results – a prospective clinical trail</b><br><i>Dietze A., Annecke A., Mittlmeier T.</i>   |
|                      | <b>Static arch height and rearfoot alignment are associated with dynamic plantar pressure patterns during running in runners with plantar fasciitis</b><br><i>Ribeiro A.P., João S.M.A., Sacco I.C.N.</i>                                    |
|                      | <b>Integrated gait analysis of flatfoot: the potential of appropriate foot models and anatomy-based pedography</b><br><i>Giacomozzi C., Stebbins J., Berti L., Leardini A.</i>   |

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|                      | <b>Plantar pressure distribution during walking in habitually barefoot populations</b><br><i>Wunderlich R.E., Hatala K.G., Dingwall H.L., Richmond B.G.</i>  |
|                      | <b>A simple scaling relationship for CPEI between the emed-x and matscan</b><br><i>Hillstrom H.J., Cacace L., Hafer J., Lenhoff M.W., Song J., Hannan M.T.</i>   |
|                      | <b>Balancing barefoot in single leg ballet poses generates less center of pressure oscillations</b><br><i>Lobo Da Costa P.H., Nora F.G.S.A., Vieira M.F., Bosch K., Rosenbaum D.</i>   |
|                      | <b>Measurement accuracy is related to a homogenous pressure during the calibration</b><br><i>Engel K., Hübner T., Potthast W., Brüggemann G.-P.</i>  |
|                      | <b>Bench press with an unstable load does not affect stability</b><br><i>Kristiansen M., Svarrer S.M., Mora-Jensen M.H., Timm A.R.</i>   |
|                      | <b>Studded and bladed football boots: Which one to trust?</b><br><i>Abboud R.J., Bhutani T.S., Arnold G.P., Nasir S., Wang W.</i>  |
|                      | <b>Sensitization and degenerative changes in the tibiofemoral joint influence plantar loading in patients with symptomatic tibiofemoral osteoarthritis</b><br><i>Rosland T., Gregersen L.S., Eskehave T.N., Arendt-Nielsen L., Kersting U.G.</i> |
|                      | <b>Ankle joint loading during landing on inclined surfaces - mechanical effect of ankle braces in injury prone situations</b><br><i>Theodorakos I., Rueterbories J., Andersen M.S., de Zee M., Kersting U.G.</i>                                 |
|                      | <b>Body composition influences indirect but not direct measures of foot arch structure in adult females</b><br><i>Wearing S.C., Reed L.F.</i>  |
|                      | <b>Using pliance and a pliance developed saddle to optimize fit and comfort for a horse with severe spinal abnormalities</b><br><i>Crowell A., Gavin A., Carter A.</i>   |
| <b>15:40 - 16:20</b> | <b>KEYNOTE LECTURE 2</b><br><b>Biomechanics in skiing – load analysis, performance and perspectives</b><br><i>Stefan Lindinger, University of Salzburg</i>   |
| <b>16:20 - 17:10</b> | <b>SESSION 4 Exercise &amp; Athletic Footwear</b><br>Chair: <i>Brauner T. &amp; Potthast W.</i>  |
| 16:20 - 16:30        | <b>Relationship between impact related variables and perceived comfort in different running shoe construction technologies</b><br><i>Dinato R.C., Pereira I.L.R., Butugan K., Ribeiro A.P., Onodera A.N., Sacco I.C.N.</i>                       |
| 16:30 - 16:40        | <b>Football patterns in natural motion running shoes compared to conventional running shoes</b><br><i>Mifsud N.L., Kristensen N.H., Kersting U.G.</i>  |
| 16:40 - 16:50        | <b>Plantar pressure depends on the playing surface in tennis</b><br><i>Damm L., Starbuck C., Stocker N.</i>  |
| 16:50 - 17:00        | <b>Transient impact estimation using plantar pressure time series in runners with plantar fasciitis</b><br><i>Ribeiro A.P., Dinato R.C., João S.M.A., Sacco I.C.N.</i>   |
| 17:00 - 17:10        | <b>Synchronization of measurement systems for determining the physical work load</b><br><i>Löwis P., Kaiser H., Consmüller T., Blüthner R., Hanisch C., Schust M., Kalpen A.</i>   |
| <b>19:00</b>         | <b>Evening Event</b><br><b>Dinner at Prinses Juliana floating boat in Aalborg Harbour</b><br>Guitar accompaniment, P.H. Lange  |