



# kk-electronic<sup>®</sup> Call for participation

## Competition on Fault Detection and Fault Tolerant Control for Wind Turbines



A benchmark model on fault detection and fault tolerant control of wind turbines was presented at IFAC Safeprocess 2009 (P.F. Odgaard, J. Stoustrup, and M. Kinnaert: Fault tolerant control of wind turbines – a benchmark model). In Proceedings of the 7th IFAC Symposium on Fault Detection, Supervision and Safety of Technical Processes, Barcelona, Spain, June 2009.

The paper can be downloaded from <http://www.ifac-papersonline.net/Detailed/40082.html>).

This competition is set up to find the best solution of the problems proposed in this benchmark model.

The competition consists of two parts. Part One on fault detection and isolation with deadline in September 2010, and Part Two on the fault tolerant control with deadline in 2011 (more details will be given in another Call for Participation).

The model as well as requirements to the solution can be downloaded from:

<http://kk-electronic.com/Default.aspx?ID=9385>

The competitors are asked to submit their solutions implemented in MATLAB®/Simulink®, with full access to MATLAB code and/or Simulink blocks. The fault detection and isolation scheme should be implemented as a filter/observer with a binary output, 0 in case of no faults. The controller should be implemented as a controller.

The solutions will be validated on a more detailed simulation model of wind turbines including the faults.

The competitors should as well write a paper for an invited session at:

- IFAC world congress 2011, for Part One.

The results of the competition will be announced at the same event.

- IFAC Safeprocess 2012, for Part Two. The results of the competition will be announced at the same event.

After the submission deadline closes, the submissions are asked to be uploaded to the File Exchange section of MATLAB Central: <http://www.mathworks.com/matlabcentral/>

In each part of the competition 1st, 2nd and 3rd prices are awarded with respectively 500 Euros, 250 Euros and 100 Euros, co-sponsored between MathWorks™ and kk-electronic a/s.



**Control  
intelligence  
from  
kk-electronic**



If you are interested in the competition and intend to submit a solution and a paper, please announce your intent in advance to Peter Fogh Odgaard [peodg@kk-electronic.com](mailto:peodg@kk-electronic.com) – please see time schedule below. Details on the solution submission would be provided at that time.

### Important Dates:

#### Part One

Deadline for announcing intent of participation: June 7, 2010

Deadline for submission of implemented solution: September 30, 2010

Deadline for IFAC WC paper submission: September 30, 2010

#### Part Two

Deadline for announcing intent of participation: 2011\*

Deadline for submission of implemented solution: 2011\*

Deadline for IFAC Safeprocess paper submission: 2011\*

\*: Specific dates will be provided later in a Call for Participation for this contest part.

### Proposers:

Professor Jakob Stoustrup, Aalborg University, [jakob@es.aau.dk](mailto:jakob@es.aau.dk)

Professor Pieter Mosterman, MathWorks & McGill University, [pieter.mosterman@mathworks.com](mailto:pieter.mosterman@mathworks.com)

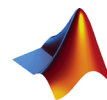
Dr. Peter Fogh Odgaard, kk-electronic a/s, [peodg@kk-electronic.com](mailto:peodg@kk-electronic.com)

### Sponsors:

kk-electronic a/s and MathWorks



**kk-electronic**



**The MathWorks™**



**kk-electronic**

Bøgildvej 3  
DK-7430 Ikast  
Denmark  
[www.kk-electronic.com](http://www.kk-electronic.com)