



SWWT Chair

# Position Statement

Stefaan Poedts

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# Who I am



**Prof. Dr. Stefaan Poedts**

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## Research interests:

### **Solar Astrophysics: Theory and Observations**

Coronal loop dynamics

Coronal heating mechanisms

### **Space Weather**

Solar corona and coronal wind modeling

Coronal Mass Ejections: initiation and IP evolution, incl. interaction with planetary magnetospheres

### **Controlled Thermonuclear Fusion Research (CTFR)**

# What I do – research projects

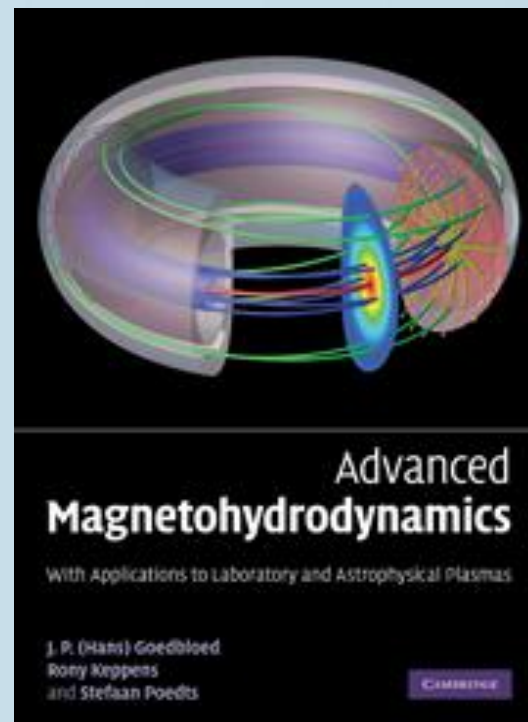
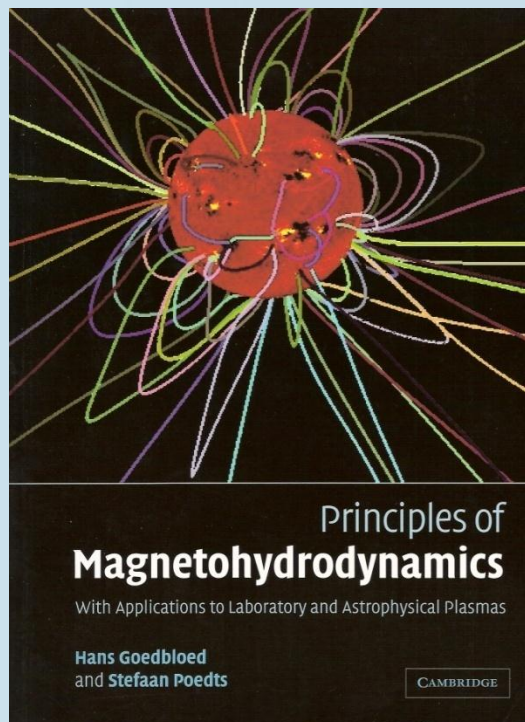
- **FWO research project:** G.0729.11: *Innovative multi-component plasma models* (Poedts)
- **GOA project** ` *Solar and Space plasma physics*' (PI Poedts, co-I: Keppens, Lapenta, Goossens; 2008-2013)
- **Intel Exascience Lab:** WP1 (Lapenta, Poedts)
- **ESA Prodex project** *SIDC Data exploitation (with ROB)*
- **ESA ITT project:** VSWMC-Phase 1
- **EC-FP7 projects** related to **space weather:**
  - **SWIFF** (coordinated by Lapenta, 7 European groups, <http://www.swiff.eu/>) feb 2011-2013
  - **SOLSPANET** (coordinated by Poedts, 6 groups) FP7-IRSES project, 2011-2014
  - **SPACECAST** (coordinated by R. Horne, BAS), 2011-2014
  - **eHEROES** (coordinated by Lapenta, 15 European teams)

# What I do – publications

## *Two books*

*With co-authors  
J.P. Goedbloed and  
R. Keppens*

**Cambridge  
University Press**  
(2004, 2010)



- **More than 215 papers in international reviewed journals**, on space weather, coronal heating, dynamics of dusty plasma's, CME evolution, CME shocks, solar wind, solar wind-magnetosphere interaction, etc.
- **More than 160 papers in proceedings of international conferences**
- **6 'outreach' publications**

# What I do – teaching

- **"Calculus & Analysis"**: 8 ECTS points course to first-year students BSc in Bio-engineering
- **"Differential equations"**: 4 ECTS points course to second-year students BSC Bio-engineering
- **"Numerical simulation of differential eqations"**: 6 ECTS points course in collaboration with S. Vandewalle and P. Dierckx.
- **"Plasma physics of the Sun"**: 6 ECTS points course for MSc students in mathematics and physics
- **"Calculus"**: 9 ECTS points course for BSc students in mathematics and/or physics in collaboration with Prof.Dr. R. Keppens

# What I think - SWWT

The **SWWT** plays a **crucial role** in the development of Europe's space weather strategy, services and applications.

- provides **expert advice** to ESA's SSA programme
- has a **stimulating and directing role** in Europe's space weather research, applications and services communities
- provides a **contact forum** for academic – industrial knowledge transfer
- organizes related **outreach and educational activities**.

# What I think - SWWT

- Space Weather phenomenology is **complex** (multi-scale and multi-physics) and thus ideal to bring experts from different domains together.

Therefore, the **Topical Working Groups** are very important and I am looking forward to meet the spokespersons of these TWGs and to discuss their working modalities.

In addition, the SWWT should **maintain and extend links with EPS, EAS, EGU**, and their sister organizations on other continents. Also, the SWWT should establish close(r) contacts with related national organizations with SW programs, like **CNES, DLR and NERC**.

# What I think - SWWT

- Space Weather has a broad and ever growing **social impact** and relevance and thus provides an ideal base for **outreach and educational activities**.

We can exploit this even more than we do now and we should discuss our strategy, incl. **using the new media** (*apps, twitter, Facebook, etc.*).





# What I think - SWWT

- At the same time, space weather research evolves towards ever more **advanced physics-based mathematical models** which need to be integrated properly in the prediction and forecast procedures.

I would like to focus on the **solar physics / space weather connection** to assure these models can be used / adjusted for better forecasts and better services to the ever broader user community.

# What I think - SWWT

- The existing **contacts with the European Space weather industry** should be maintained and extended and linked to the educational programme contacts to improve and exploit the related job market potential.

Need for “**space weather job database**” or at least a forum (web page on ESWP, mailing list?) where SW industry can announce jobs?

# What I think - SWWT

- Europe is still lagging behind the USA when it comes to *some aspects* of space weather services, but we are catching up fast and **we have the potential to do even better.**

ESA and EU are providing money sources (FP7, SSA) but there is a need for a **more structured organization** (with structural funding) of the European space weather community. In particular, we could think of a “**European Space Weather Centre**” (extension of SSCC?, *cf. roadmap discussion*).

I am willing to take up this challenge!