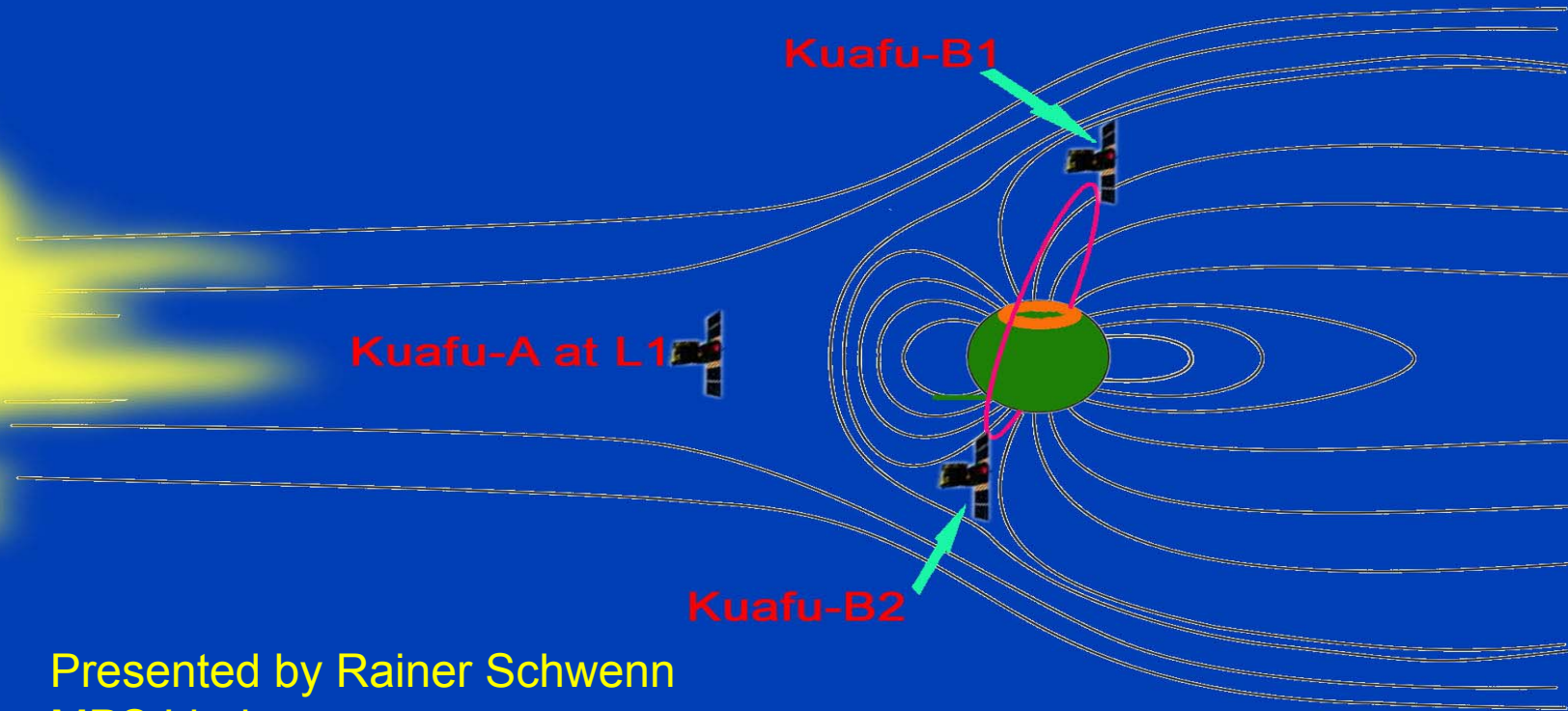


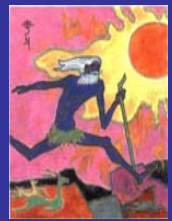
# The KuaFu mission

## Space Weather Explorer

A L1 + polar triple star project



Presented by Rainer Schwenn  
MPS Lindau  
24. April 2005 at ILWS



# KuaFu mission goals

## Space weather Science

To observe continually the complete chain of actions/ reactions from the solar atmosphere to geo-space:

1. Solar Source of disturbances:  
Flares, CMEs, energetic particles
2. Propagation of disturbances:  
Interplanetary clouds, radio waves, shock waves,  
solar energetic particles
3. Geo-effectiveness :  
aurora activities, sub-storms, magnetic storms,



# KuaFu mission goals

## New Science Objectives

1. First continuous imaging of the source region of solar eruptive events by vacuum ultraviolet lines.
2. Observing the line of sight velocity of CME expansion by spectral measurements of Lyman-alpha line from CME
3. First non-interactive observations of the global response of the geo-space to solar disturbances

# Payload on KuaFu-A

- **EUV/FUV Disk Imager (EDI):**

Survey the Sun for coronal structure and activity evolution: imminent and ongoing prominence eruptions, optical flares and post CME effects

- **Coronal Dynamics Imager (CDI):**

A white light coronagraph to survey the extended corona from about 2 to 15  $R_s$  from disk center

- **Radio Burst Instrument (RBI):**

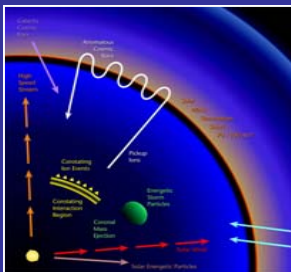
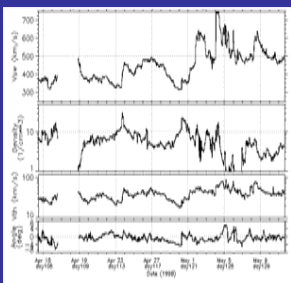
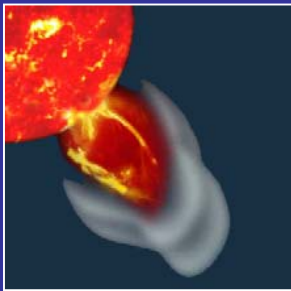
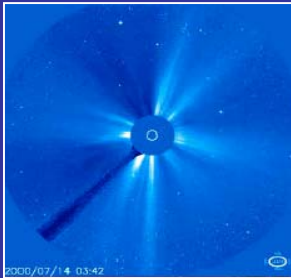
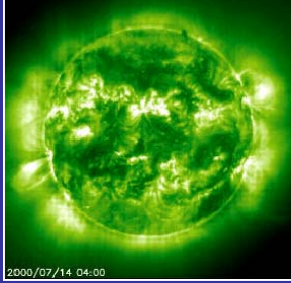
Observe radio Type III bursts caused by accelerated electrons on their way from a flare/CME site out into space

- **Solar Wind Instrument Package (SWIP):**

Observe *in-situ* the solar wind variability: stream structures, corotating interaction regions, Alfvénic fluctuations, shock waves, magnetic clouds, etc

- **Solar Energetic Particle Sensor (SEPS):**

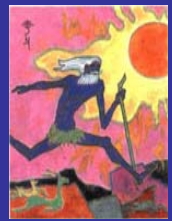
Measure the fluxes of energetic particles accelerated at flare sites and at shock fronts





# Summary on KuaFu-A

Instrument	Mass	Power	Telemetry	Advisor
EUV/FUV Disk Imager (EDI)	25 kg	20 W	100 kbps	P. Rochus et al.
Coronal Dynamics Imager (CDI)	31 kg	35 W	50 kbps	P. Lamy et al.
Radio Burst Instrument (RBI)	10 kg	5 W	5 kbps	J.-L. Bougeret
Solar Wind Instrument Package (SWIP)	5 kg	5 W	3 kbps	R. Schwenn and K.-H. Glassmeier
Solar Energetic Particle Sensor (SEPS)	TBD	TBD	TBD	R. Wimmer-Schweingruber
Total	71 kg (+SEPS)	65 W (+SEPS)	158 kbps (+SEPS)	



# Team members for KuaFu assessment study and pre-study

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Eric Donovan	University of Calgary, Canada
Karl-Heinz Glassmeier	TU Braunschweig, Germany
Robert Wimmer-Schweingruber	Universität Kiel, Germany
Tielong Zhang	Space Research Institute, Austrian Academy of Sciences,

and others