



COST action(s)

and

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Agenda, motivation

- COST activities at the DEF
- Scientific results of COST in the field of antennas
- Scientific impacts of activities of DEP in the field of antennas
- Scientific benefits and our outputs
- International collaboration with partners abroad
- Participation and our coordination of activities in the Czech republic
- Management committees, working groups, STSM, workshops
- Support of the Czech Ministry of education, youth and sport
- Conclusion

COST activities at the DEF

Propagation

OC092, OC280, OC09074, OC10005, LD13040

Antennas

IC603-OC08018, IC803-OC09075,

IC1102 VISTA-LD12055, IC1301 WiPE-LD14122

Optics for communication

LD12058, LD15083

Bio effects in electromagnetics

TD1301, BM1309

Scientific results of COST in the field of antennas (IC1102 VISTA)

Novel (novelty in, new) antennas?

Directions:

1. Well known antennas revival, new methods of analysis, approach to synthesis
2. New structures – „meta“, new bulk materials (graphene, nanostructures)

Scientific benefits and our outputs

VISTA is the IC1102 [COST](#) Action
on

Versatile, Integrated, and Signal-aware Technologies for
Antennas

COST LD12055 project

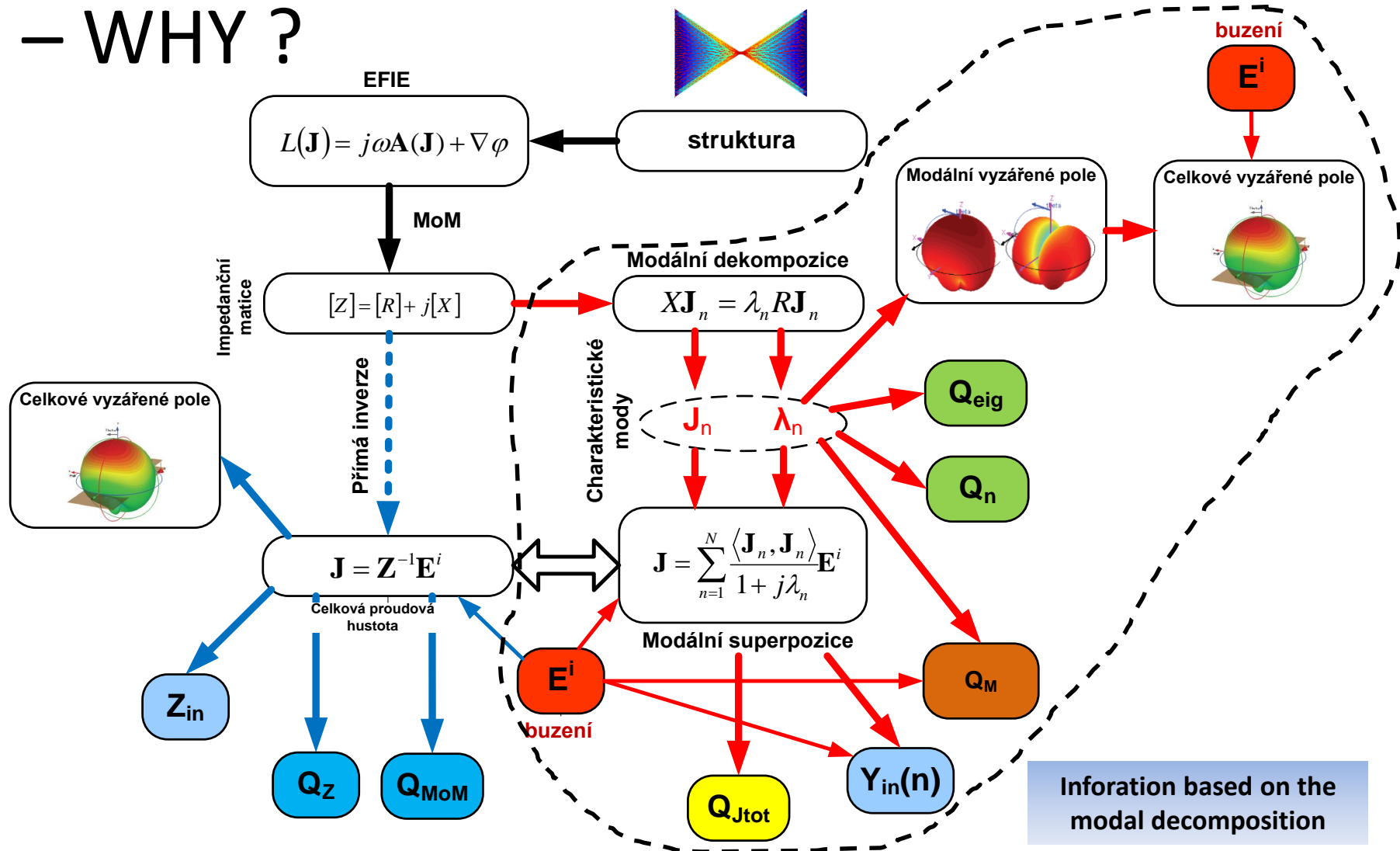
Pokročilé technologie a modelování pro antény a senzory
Advance Modeling and Technologies for Antennas and
Sensors (AMTAS) LD12055

Scientific impacts of activities of DEF (in the field of antennas)

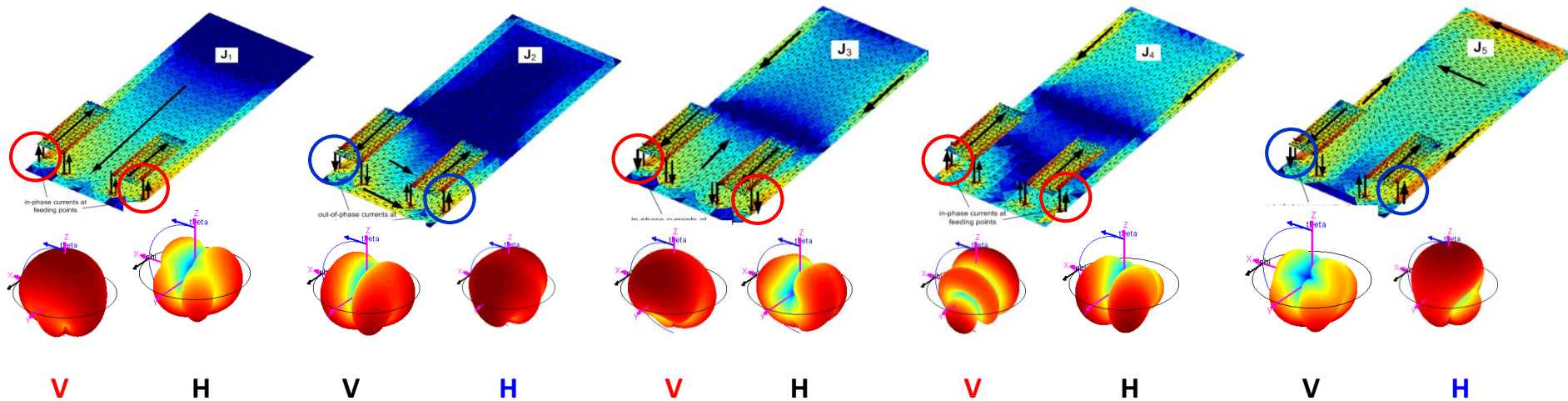
New approach to characteristic mode theory and practice (development of new approach, strategy, software)

Characteristic modes (Harrington 1964)

– WHY ?

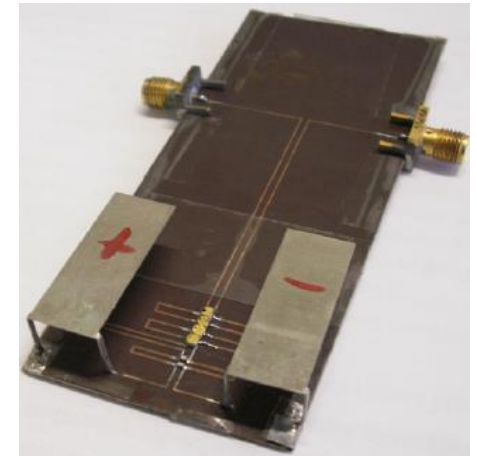
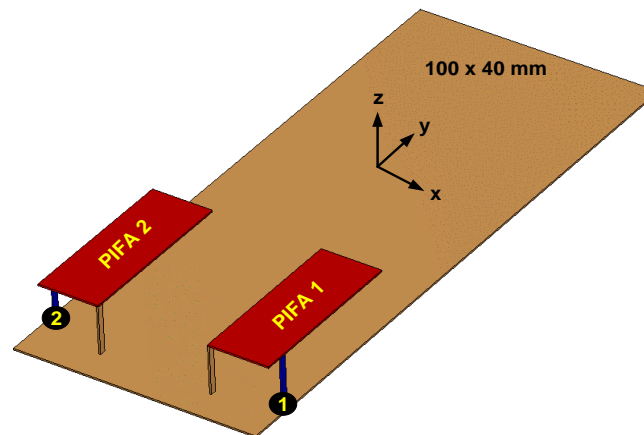


PIFA antenna and modal decomposition

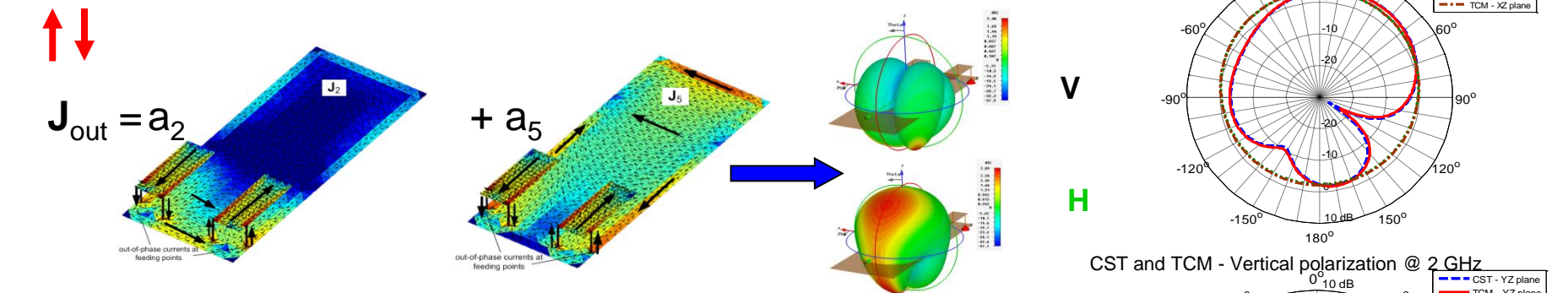
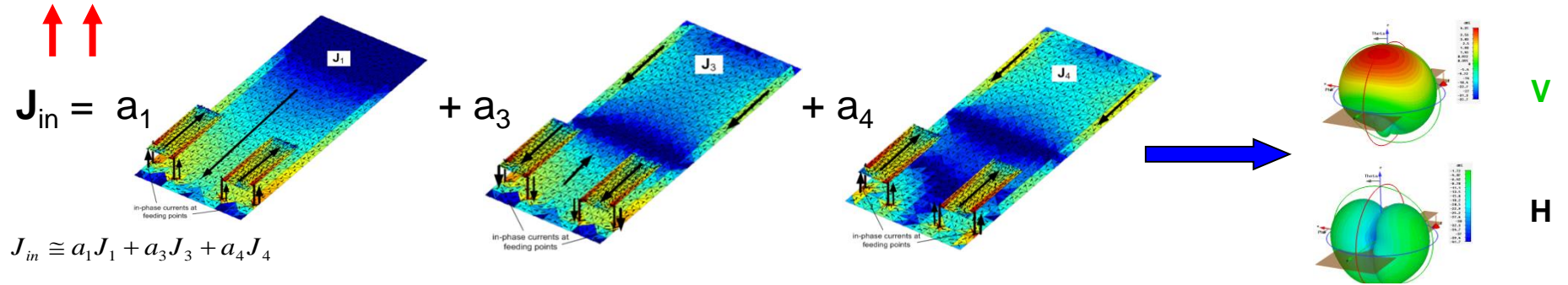


Y: J_1 , J_3 a J_4 support the **vertical component** of radiation – **parallel feeding (++)**

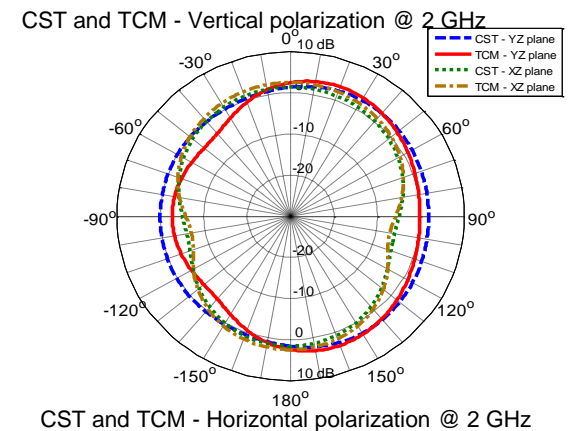
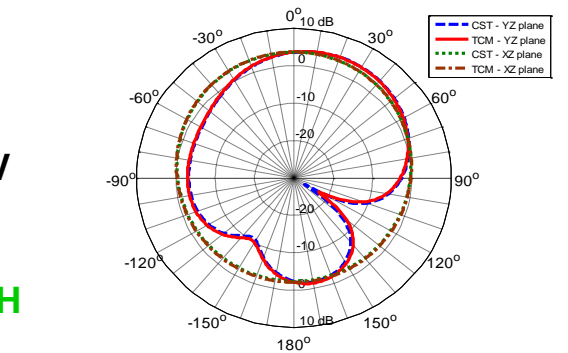
X: J_2 , a J_5 support the **horizontal component** of radiation – **antiparallel feeding (+-)**



Doubled PIFA antenna - modal superposition



Polarisation diversity



Scientific benefits of VISTA

- Assessment and survey of the state-of-the-art and existing research initiatives
- Technological development of novel solutions
- Development of the required supporting technologies
- Cooperation and networking
- Training and education

Scientific benefits and our outputs (in a frame of AMTAS)

V001 - Modální analýza vyzařujících struktur

V002 - Činitel jakosti v obecném popisu anténních struktur

V003 - Generátor trojrozměrných struktur

V004 - Senzory pro identifikaci pohyblivých objektů

V005 - Miniaturizační techniky a charakterizace vyzařujících struktur

Scientific benefits and our outputs

AMTAS (VISTA) results

- 7 papers in scientific journal abroad
- 6 international leading conference
- 5 contributions of COST VISTA workshops
- 5 functional units/authorized software
- 2 patents
- 2 PhD defended

International collaboration with partners abroad

Up to now:

ACE Antenna Centre of Excellence

CARE - Coordination Antenna Research in Europe

ESoA - European School of Antennas

EuCAP - European Conference on Antennas and Propagation

EurAAP - European Association of Antennas and Propagation

Behind the horizon: EuCAPs, EurAAP, ESoA, COST associations??

Management committees, working groups, STSM, workshops

Management committee meetings - two meetings per year

Workshops – usually with MCMs

Working groups

Focus areas

STSM

Publication

Participation and our coordination of activities in the Czech republic

Brno University of Technology, Brno
MECAS, Plzeň

Rfspin s.r.o.

University of West Bohemia, Plzeň

Other partners from academic background





AToM
ANTENNA TOOLBOX FOR MATLAB

CZECH TECHNICAL UNIVERSITY IN PRAGUE
FACULTY OF ELECTRICAL ENGINEERING
DEPARTMENT OF ELECTROMAGNETIC FIELD
TECHNICKÁ 2, 166 27 PRAHA 6, CZECH REPUBLIC

The Antenna toolbox 2014-2017

- funding from the Technology Agency of the Czech Republic received



The Team

CTU FEE in Prague
Brno University of Technology
MECAS ESI Pilsen



+ 5 MSc. / Ph.D. students

Support of the Czech Ministry of education, youth and sport

1. Support of the basic research
2. „Support“ of the international collaboration
3. Long term influence (behind the horizon action)

Compare other projects – MSMT support of COST actions is much more than only financial support and has a long term influence

Conclusion

- DEF activities within COSTs
- COST VISTa (AMTAS) example
- Scientific results in a frame of the CR
- International collaboration and scientific results
- Pedagogical aspects (in the Czech republic as well as in Europe)
- ICAPS 10 years (2006 – 2016)
- Support of COST actions is much more than only financial support!!!)