

# Overview of Microwave Medical Applications in Europe Since the Beginning of the COST Action TD1301 – MiMed

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# Overview of Microwave Medical Applications in Europe Since the Beginning of the COST Action TD1301 – MiMed

<http://cost-action-td1301.org/publications/newsletter/>



**COST MiMed Newsletter**  
ISSUE 1 SEPTEMBER 2014

**Welcome from the Action chairs**

Dear MiMed Participants,

It is with great pleasure that we write this welcome message to you as part of our first MiMed COST Action, TD1301 newsletter. Let us start by personally thanking Giuseppe, Barbara, Doris and Flavia who are editors and co-authors of this issue. They have done an amazing job to produce this issue in time for our second meeting to be held in Prague – thank you!

It has been over two years since this "voluntary" started, when we first started writing our newsletter as ambassadors of our Action in conferences and meetings, etc in your publications, and invite others to get involved as well. We would also encourage you to take full advantage of the support structure of the Action: School, Short Term Scientific Stays, Placements and funding for publication.

Finally, let us thank all of you – scientists, future scientists, event holder and COST officers – for joining us and generously dedicating your time, knowledge and enthusiasm for making this network possible.

Thank you!  
Rajpal & Martin

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**Welcome to first issue!**

You are reading the first edition of the COST MiMed Newsletter. In order to leave our readers informed about our activity, we have decided to release a newsletter once a semester. In this first edition, you will find out who has been happening within our Action. This is also a good way to start to reach out with our research groups and Action members. I think you will be surprised and excited about all the opportunities arising within our Action on a large range of social research themes. We hope to hear from you soon, and we welcome your feedback!

In every issue there will be an article to summarize decisions and decisions carried out by the Management Committee. These, as well as individual research activities, will be the main focus of our Action. Finally, we will return all our efforts to the "COST Action" such as media coverage, media and other advertisements of our research activity and our research groups and Action members. I think you will be surprised and excited about all the opportunities arising within our Action on a large range of social research themes. We hope to hear from you soon, and we welcome your feedback!

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**COST MiMed Newsletter**  
ISSUE 2 SEPTEMBER 2015

**Welcome from the Action chairs**

Dear MiMed Participants,

The Chairs would like to welcome you to the latest edition of the MiMed Newsletter. This newsletter is a great opportunity to both reflect on the significant achievements of the MiMed community in the last year, and inspire us all to continue this work in the years to come. Within today's activities, some of the highlights included our Work Group meetings in Prague and

Finally, let us thank all of you – scientists, future scientists, event holder and COST officers – for joining us and generously dedicating your time, knowledge and enthusiasm for making this network possible.

Thank you!  
Rajpal & Martin

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**Message from COST EMF-MED Chair**

The COST Action EMF1303 "European network for innovative uses of EMFs in biomedical applications (EMF-MED)" provides a cooperative framework to support the research on biological effects of non-ionizing EMFs and their use in biomedical applications. Research on biological effects of EMFs has traditionally focused on health risks, shifting the paradigm. COST EMF-MED focuses on beneficial effects – aiming to contribute to development and optimization of innovative biomedical medical devices and applications, which will be safer, more efficient and less invasive.

This aim is a common point between the two Actions as well as the COST EMF-MED also aims to provide a better understanding of underlying physical and biological interaction mechanisms, related to both cancer and non-cancer applications, filling the gaps in present state of knowledge.

The belief that the resulting innovative EMF-based biomedical applications (just like medical microwave imaging) will give a significant boost to the current healthcare systems, by providing cost-effective therapeutic or diagnostic alternatives.

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**COST MiMed Newsletter**  
ISSUE 3 JANUARY 2017

**Welcome from the Action chairs**

Dear MiMed Members,

At the start of a new year, and the first year of the MiMed COST Action, it is a good time to reflect on the milestones and achievements of our network to date. The overarching goal of the Action proposal was to support microwave medical device researchers from their technology closer to the patient and closer to the market. This has been clearly achieved. Through the hard work and dedication of the MiMed members, we have supported a wide spectrum of training schools, from basic electromagnetic meta all the way to clinical trials and technology assessment. At each and every training school, MiMed researchers have been eager, enthused and engaged. Similarly, through the STSM programme, our early stage researchers have had the opportunity to learn at leading microwave research labs in Europe, gaining international, interdisciplinary and intersectoral experience. More important than that, however, are the friendships developed through the MiMed Action, which we know will last long after the Action closes. To conclude, the greatest impact of the Action has been to turn MiMed from a research-network into a research-community, where global and friendship are the common currency!

The Chairs and Management Committee look forward to working with you for this year and hopefully we can all work together long into the future!

Martin and Rajpal

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**Message from Lorenzo Crocco, WG2 leader**

The next meeting of the MiMed COST Action will be held in Naples on February 2nd and 3rd, 2017, hosted by the Institute of the Electromagnetic Spreading of the Department of the National Research Council of Italy (IRCC-CNR).

The meeting is entitled "Synergies between nanocomposites and electromagnetic waves for contrast enhanced microwave imaging, therapy and theranostics" and will be concerned with the activities of the EMF-MED network in the Workshop Group 2 focus area "Contrast Enhanced Microwave Imaging".

This focus area concentrates in the adoption of contrast agents to improve performance and reliability of MWI, as well as more in general on the potential arising from interactions between nanocomposites and electromagnetic waves. This includes the selection and optimization of contrast agents, their biocompatibility, and re-engineering the design of pre-clinical tests, ethical issues, as well as the specific design and technological aspects related to imaging devices exploiting these concepts.

The workshop follows the one held in Figueira in 2014 during the 2nd WG meeting and the various presentations given at other MiMed meetings and aims at making the point on the current state of the art and the expected developments for this emerging topic. It will include 13 scientific presentations by researchers from different countries and communities (electrical and material engineers, clinicians, chemists, biotechnologists, etc).

I look forward to seeing you in Naples!



**COST MiMed Newsletter**  
ISSUE 4 APRIL 2018

**Message from the Action chairs**

Dear all,

It seems like yesterday we were about to start this wonderful adventure: our COST Action TD1301, MiMed.

We cannot thank enough to everyone in COST for the amazing opportunity and for trusting us to lead a four-year networking project which gathered over 250 people from 30 countries! We will be forever grateful to our Science Officer, and all our Administrative Officers throughout the years, as well as the remaining staff in the COST office in Brussels, whom we met at several meetings and occasions. Your work and dedication is truly inspiring!

Also, have so much to thank to everyone in our Action: WG leaders, STSM manager, Media officer, all of you involved in the newsletter, all participants, speakers, trainers, trainees – I could write all of your names, but the list of people would be too long to write in this message! You have all made our Action a success and we have so much to be proud for as a community.

A really special thank you goes to everyone in our great host Institution, who have done an amazing work of keeping all accounts and logistics in order. It was a great pleasure working with you and becoming your friend in the past four years.

We have learned so much from all of you, been involved in so many interesting talks, schools, projects and were really lucky to have made so many great friends in the process. We hope you can count on us with anything you may need in the future!

We still have a few things to look forward to within the context of this particular COST Action, and much more that is happening as a result of this COST Action. I cannot wait to see what we will do as a community in the area of Microwave Medical (MiMed) research!

Looking forward to meeting you all again soon,

Thank you all,  
Rajpal,  
Bulgakov,  
Rajpal and Martin

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# TD1301: Development of a European-based Collaborative Network to Accelerate Technological, Clinical and Commercialisation Progress in the Area of Medical Microwave Imaging



# COST Action - Challenges

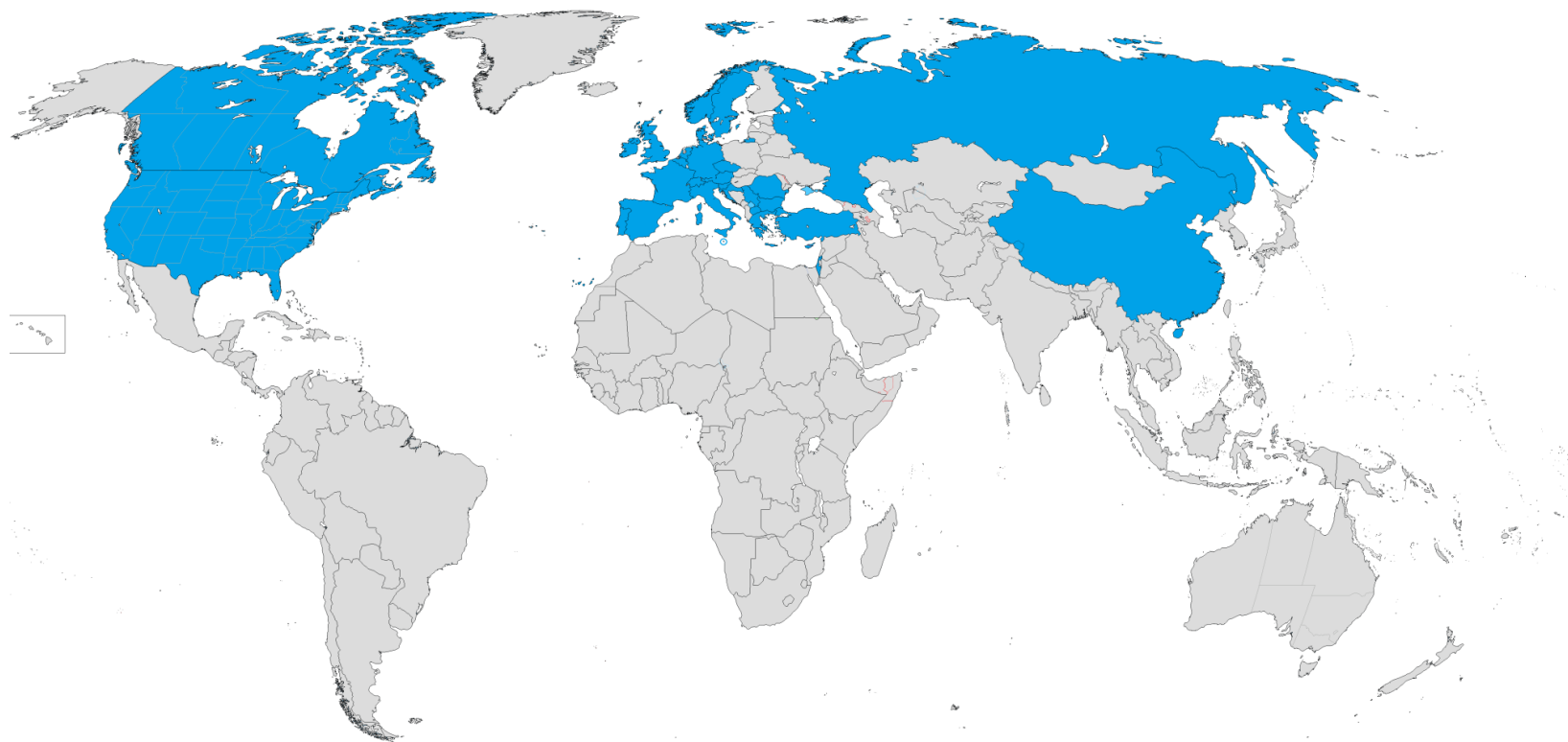
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# Who we are - Participants

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**250 researchers & 26 COST countries:** (AT, BE, BG, CH, CY, CZ, DE, DK, EL, ES, FR, HR, IE, IL, IT, MK, MT, NL, NO, PT, RO, RS, SE, SI, TR, UK), **3 IPC countries** (CA, CN, US), **1 NNC** (RU)

# TD1301 – We are online!

<http://cost-action-td1301.org/>



## Home

### URSI Young Scientist Awards 2017 to two of MiMed researchers

By [Raquel Conceição](#) on April 11, 2017 / [News](#) / [Leave a comment](#)

[Edit](#)

MiMed researchers from Ireland and Portugal – Dr Emily Porter and Dr Raquel Conceição – are recipients of the URSI Young Scientist Award 2017, Commission K "Electromagnetics in Biology and Medicine"! Congratulations to both!

[Read more →](#)

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### Special issue on the Use of Accurate Tissue and Body Models in Rf and Mw Medical Applications

By [Giuseppe Ruvio](#) on March 31, 2017 / [News](#) / [Leave a comment](#)

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The International Journal of RF and Microwave Computer-Aided Engineering ([http://onlinelibrary.wiley.com/journal/10.1002/\(ISSN\)1099-047X](http://onlinelibrary.wiley.com/journal/10.1002/(ISSN)1099-047X)) is now accepting submissions for a special issue on the Use of Accurate Tissue and Body Models in RF and MW Medical Applications. This special issue focuses on the current state of the art of tissue and body modelling [...]

Work is supported by

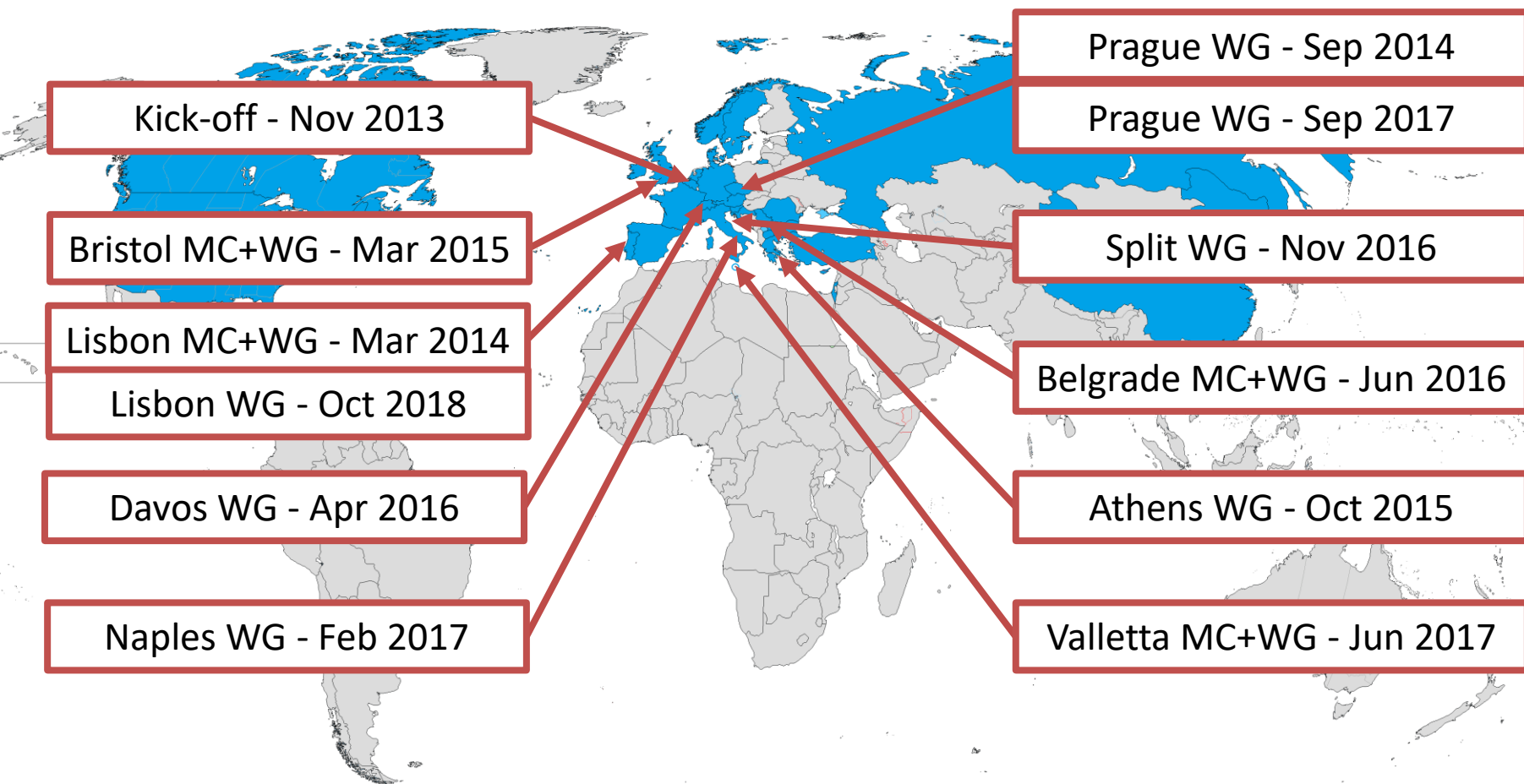


COST is supported by the EU Framework Programme Horizon 2020

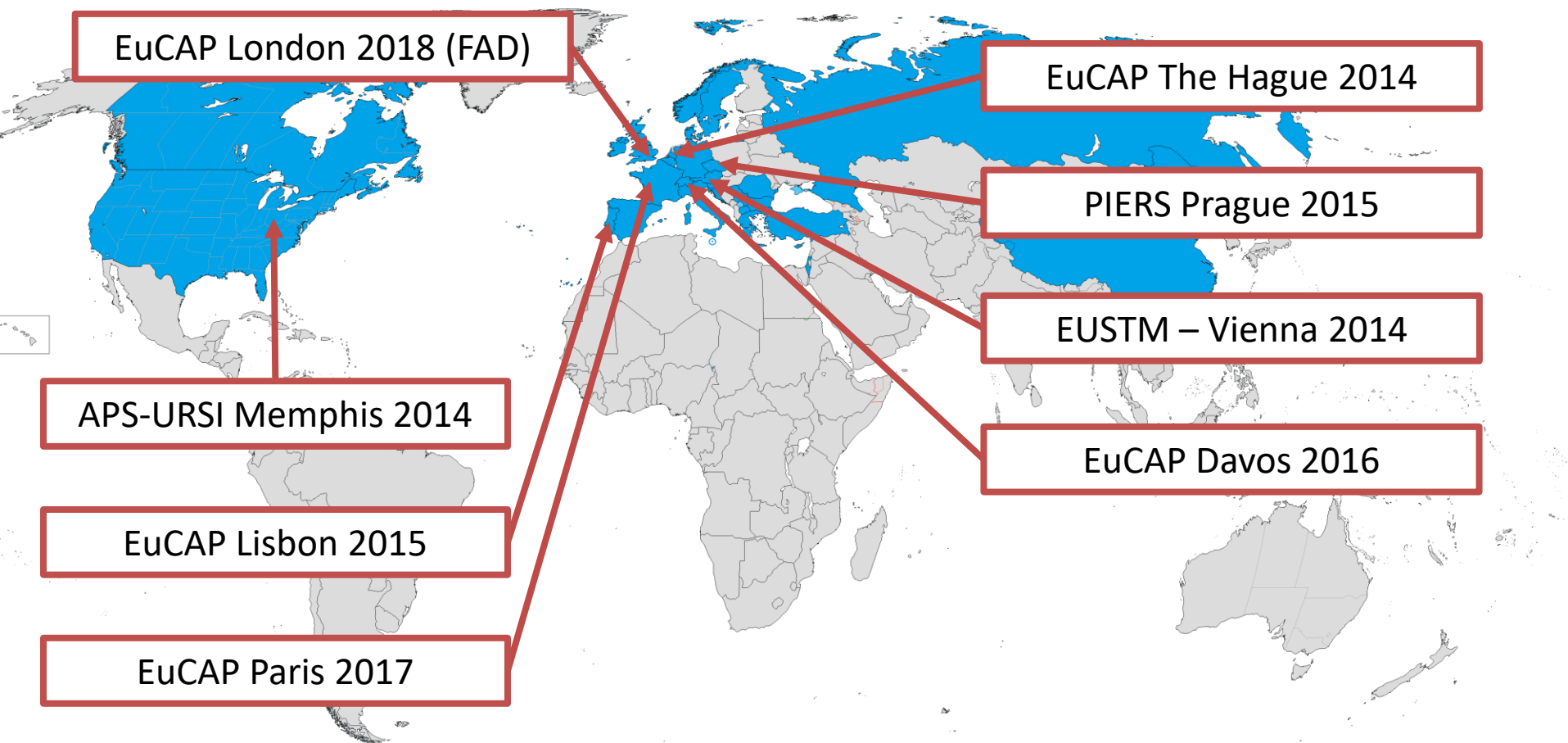
## Upcoming Events

- [International Closing Meeting \(WG & MC\) on Medical Microwave Imaging and Therapy, from "research bench to patient bedside"](#)  
07/06/2017 - 09/06/2017  
Starts at 00:00  
University of Malta, Valletta

# Who we are - Meetings



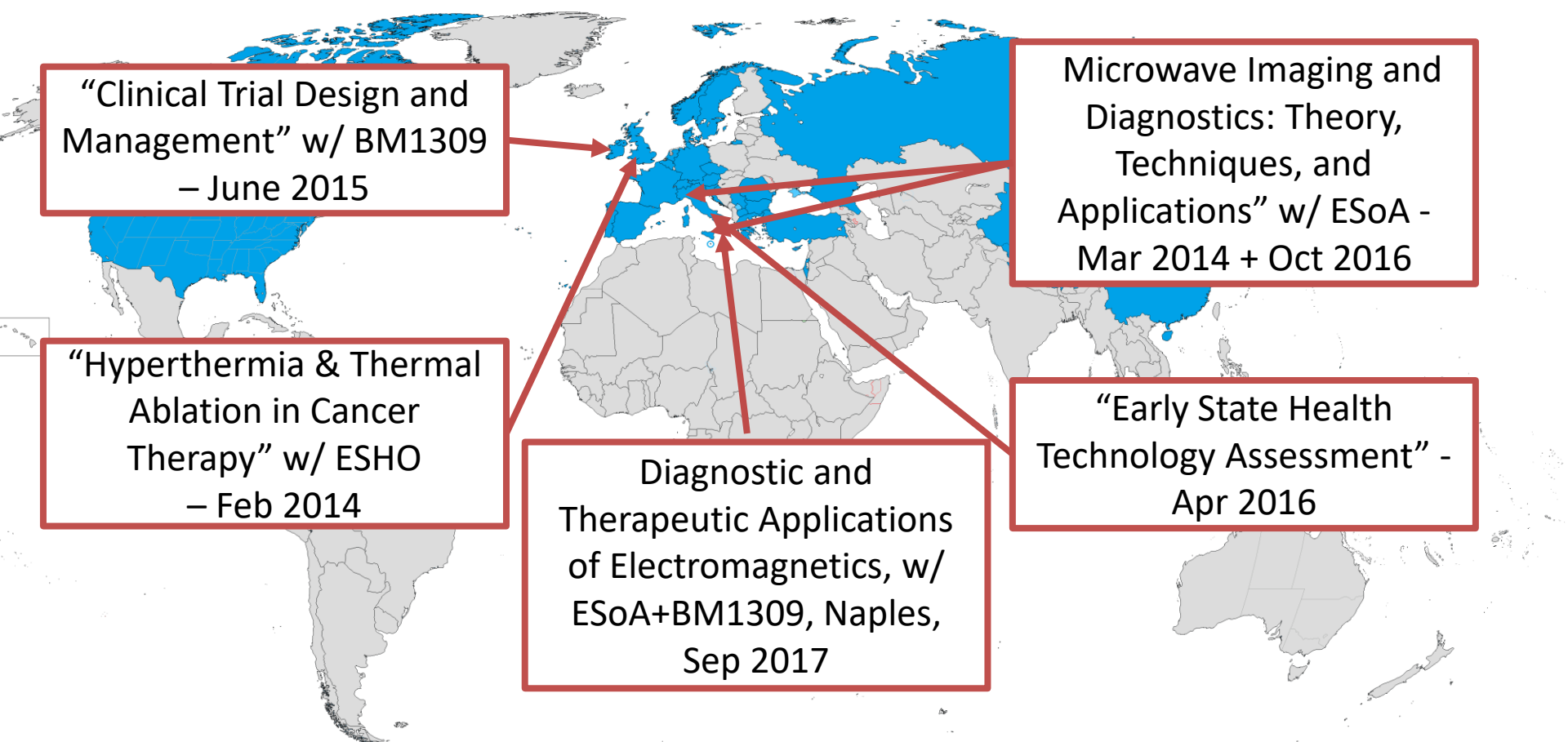
# Who we are – Dissemination Meetings





# Who we are – Training Schools

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“Clinical Trial Design and Management” w/ BM1309  
– June 2015

“Hyperthermia & Thermal Ablation in Cancer Therapy” w/ ESHO  
– Feb 2014

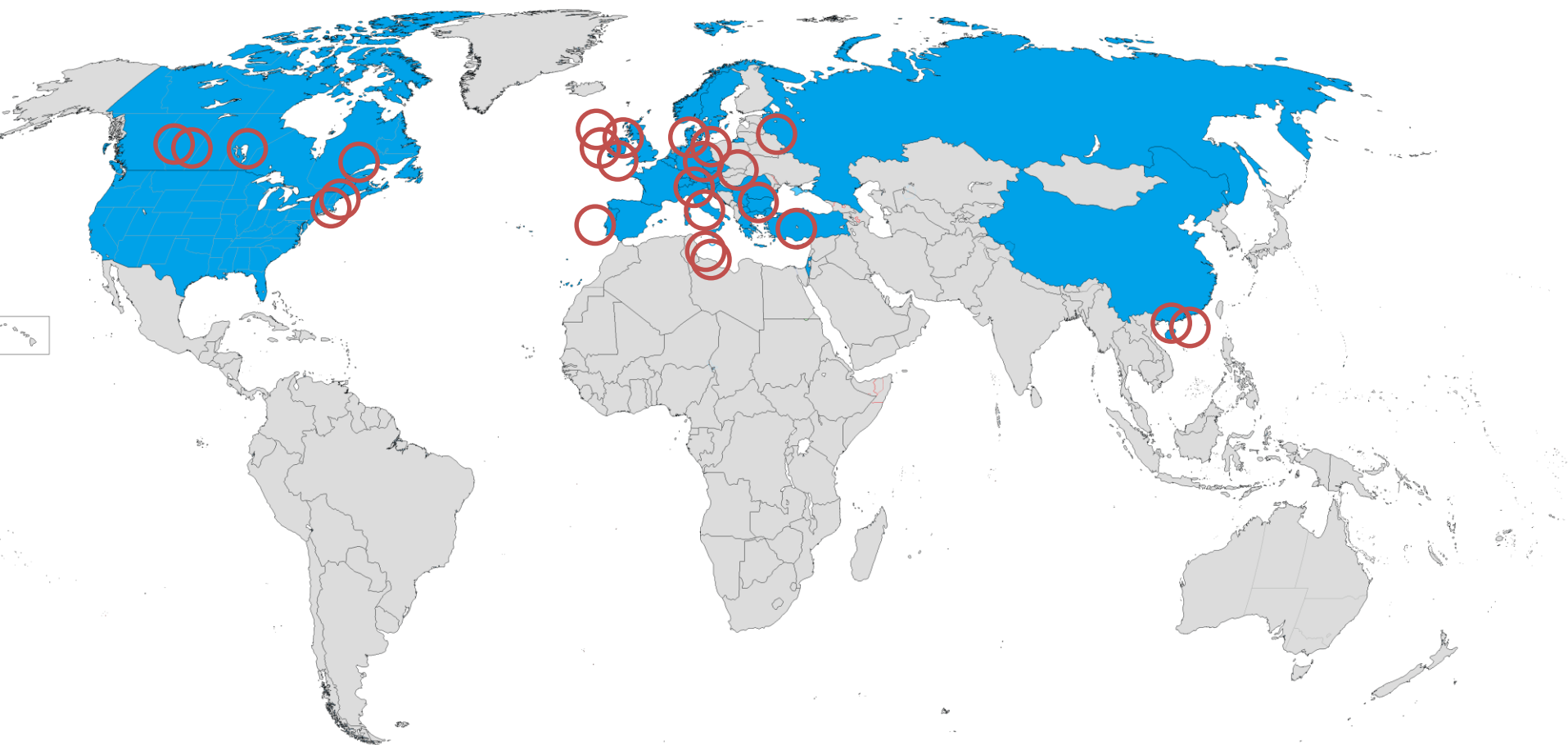
Microwave Imaging and Diagnostics: Theory, Techniques, and Applications” w/ ESoA -  
Mar 2014 + Oct 2016

Diagnostic and Therapeutic Applications of Electromagnetics, w/ ESoA+BM1309, Naples, Sep 2017

“Early State Health Technology Assessment” -  
Apr 2016

# Who we are – STSMs

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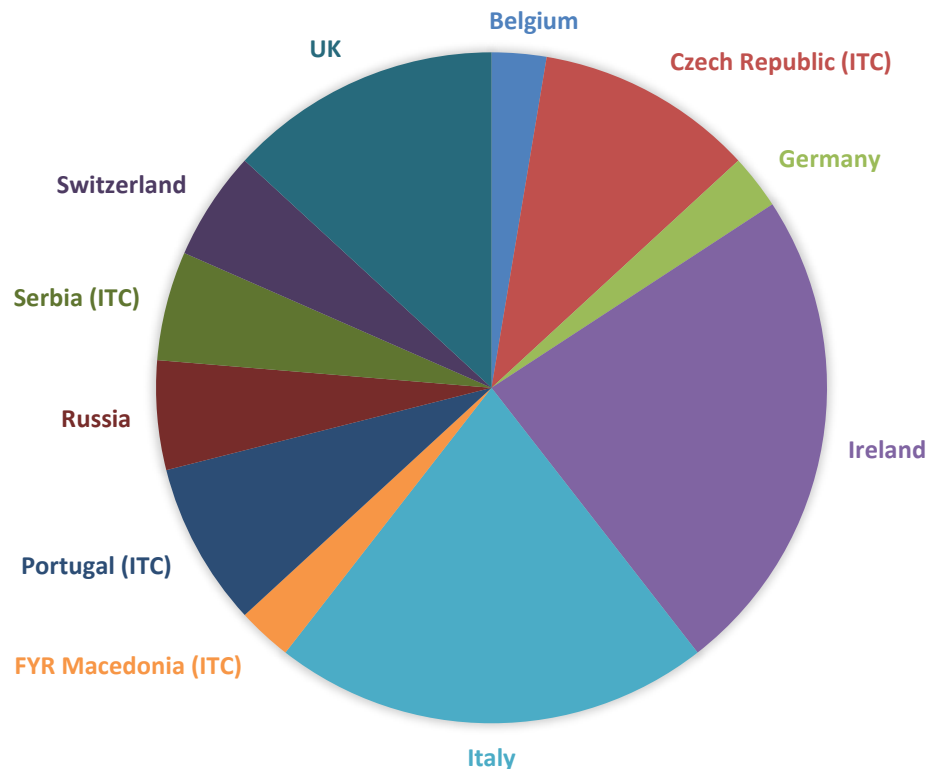


Over 40 STSMs

# Who we are – STSMs

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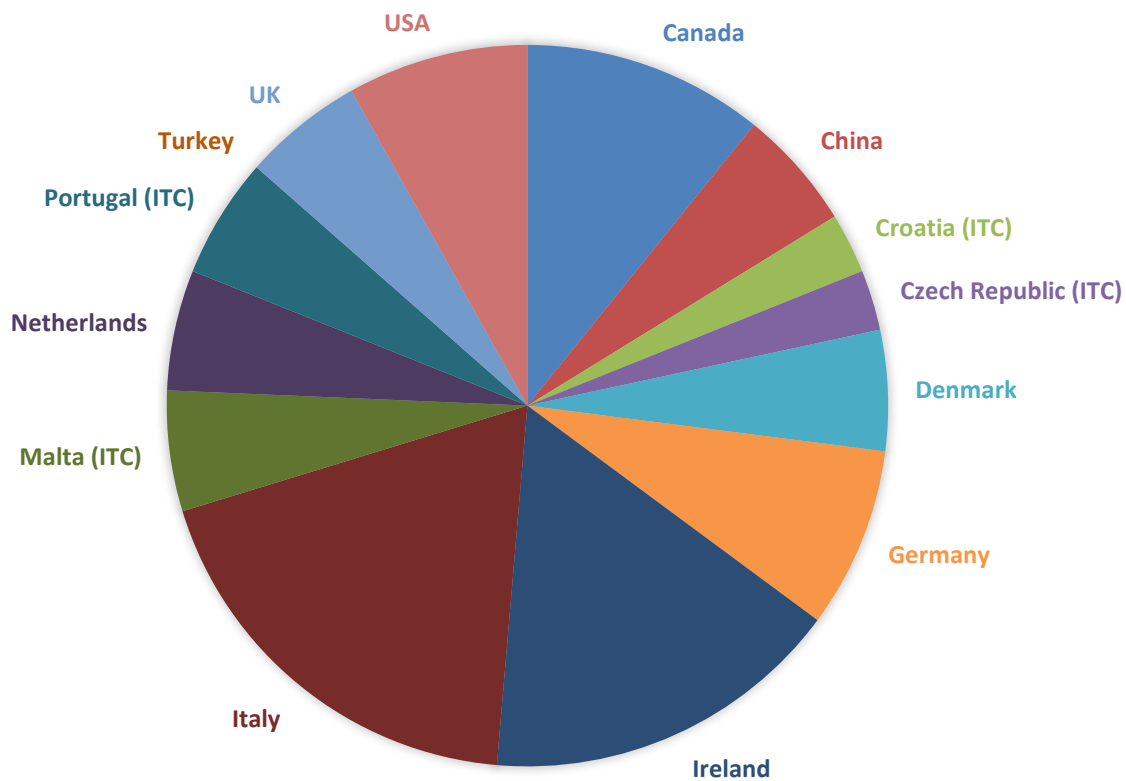
STSM HOME INSTITUTIONS



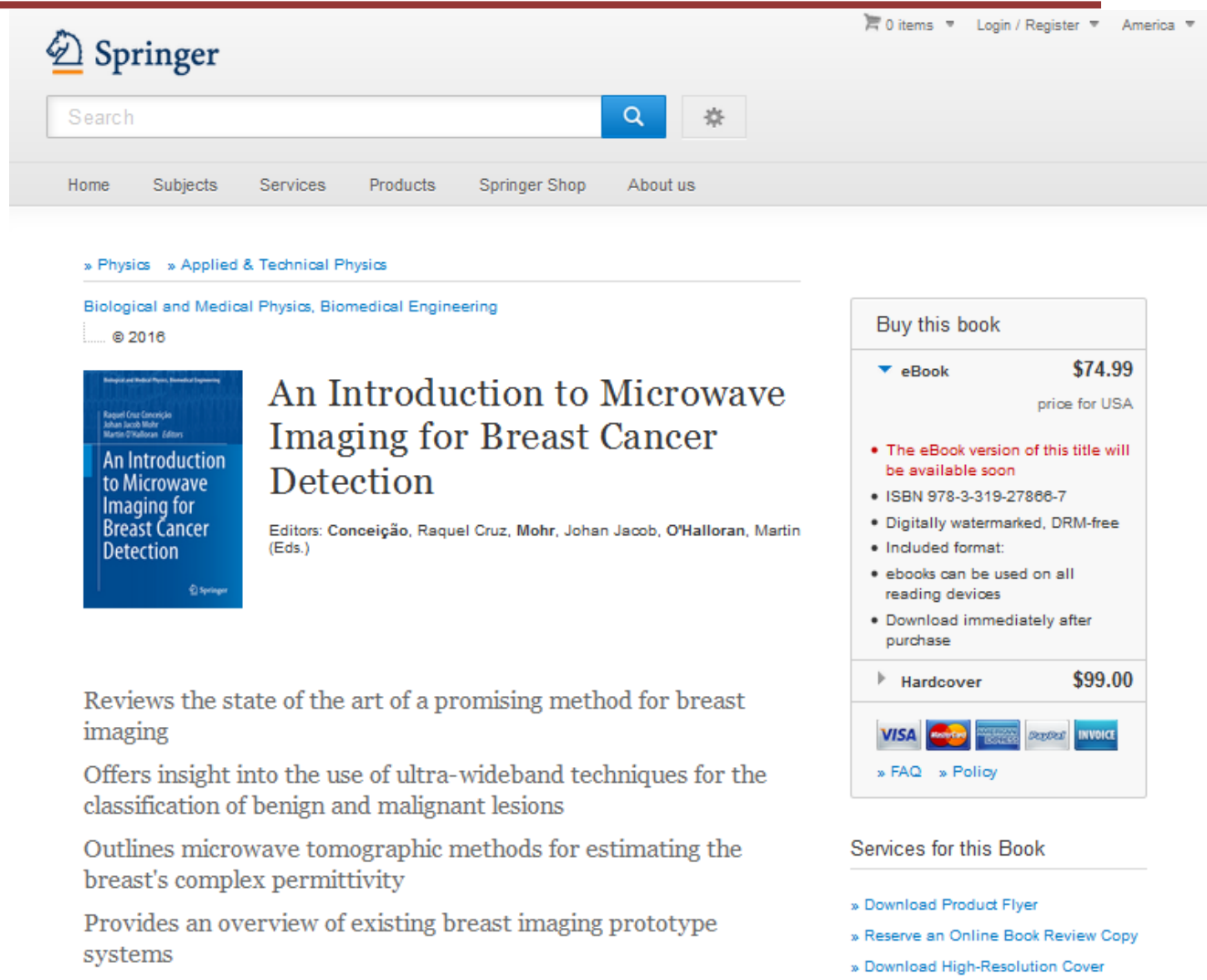
# Who we are – STSMs

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STSM HOST INSTITUTIONS



# Who we are – Our contributions



The screenshot shows the Springer website interface. At the top, there's a navigation bar with the Springer logo, a search bar, and links for '0 items', 'Login / Register', and 'America'. Below the navigation bar, there's a horizontal menu with 'Home', 'Subjects', 'Services', 'Products', 'Springer Shop', and 'About us'. The main content area features a breadcrumb trail: '» Physics » Applied & Technical Physics' followed by 'Biological and Medical Physics, Biomedical Engineering' and '© 2016'. The book 'An Introduction to Microwave Imaging for Breast Cancer Detection' is prominently displayed. The book cover is blue with white text. The title is 'An Introduction to Microwave Imaging for Breast Cancer Detection'. The editors are listed as 'Editors: Conceição, Raquel Cruz, Mohr, Johan Jacob, O'Halloran, Martin (Eds.)'. To the right of the book cover, there's a 'Buy this book' section. It shows the eBook price as '\$74.99' (price for USA) and the hardcover price as '\$99.00'. There are also links for 'FAQ' and 'Policy'. Below the 'Buy this book' section, there's a 'Services for this Book' section with links for 'Download Product Flyer', 'Reserve an Online Book Review Copy', and 'Download High-Resolution Cover'.

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**An Introduction to Microwave Imaging for Breast Cancer Detection**

Editors: Conceição, Raquel Cruz, Mohr, Johan Jacob, O'Halloran, Martin (Eds.)

Reviews the state of the art of a promising method for breast imaging

Offers insight into the use of ultra-wideband techniques for the classification of benign and malignant lesions

Outlines microwave tomographic methods for estimating the breast's complex permittivity

Provides an overview of existing breast imaging prototype systems

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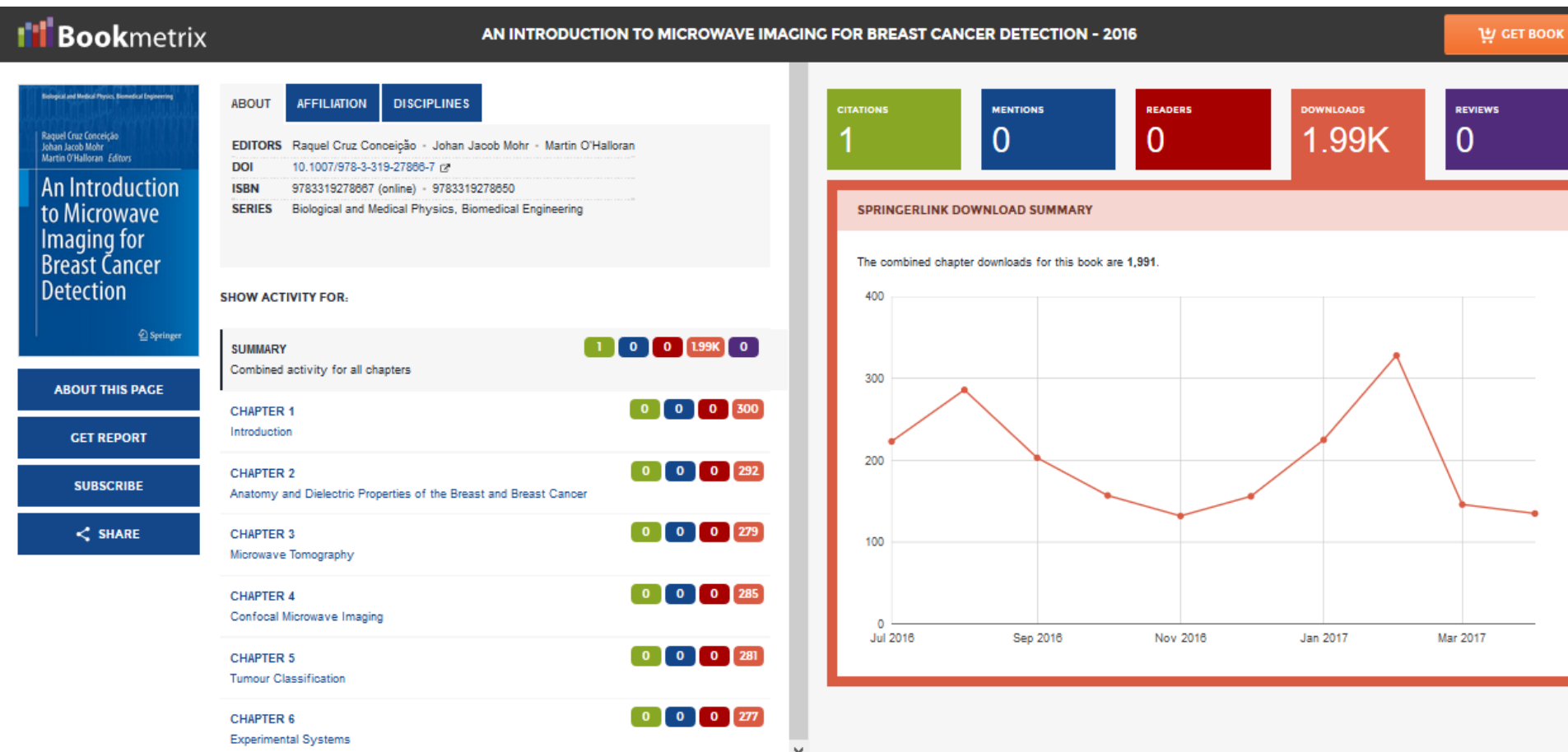
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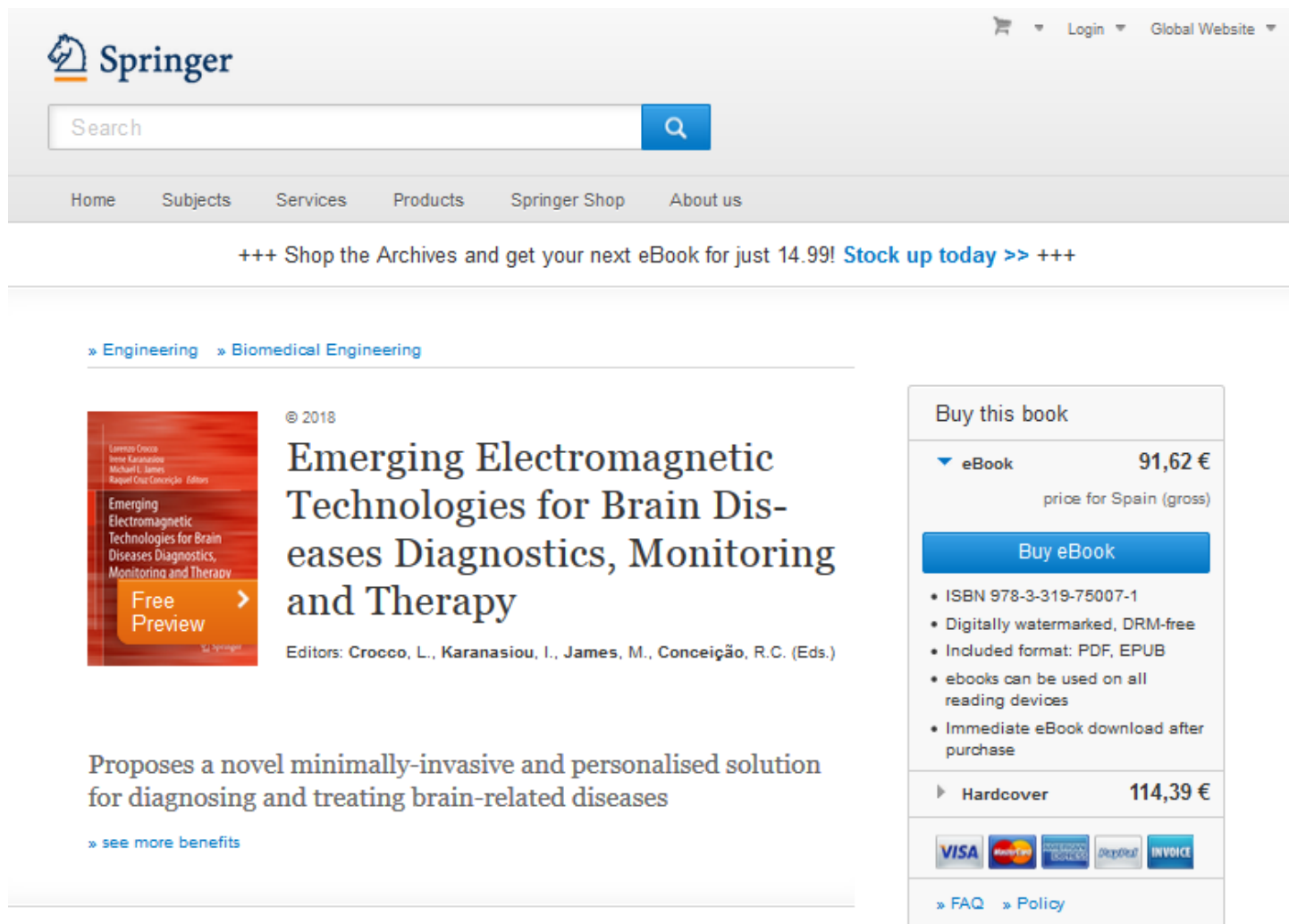
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# Who we are – Our contributions



# Who we are – Our contributions



The screenshot shows the Springer website interface. At the top, there is a search bar and navigation links for Home, Subjects, Services, Products, Springer Shop, and About us. A promotional banner encourages shopping the Archives for eBooks at 14.99. The main content area features a book titled 'Emerging Electromagnetic Technologies for Brain Diseases Diagnostics, Monitoring and Therapy' by Editors Crocco, L., Karanasiou, I., James, M., and Conceição, R.C. (Eds.). The book cover is visible on the left, and the title and editors are on the right. Below the title, a description states: 'Proposes a novel minimally-invasive and personalised solution for diagnosing and treating brain-related diseases'. To the right of the book details, there is a 'Buy this book' section with two options: 'eBook' for 91,62 € and 'Hardcover' for 114,39 €. The eBook option includes a list of features: ISBN 978-3-319-75007-1, digitally watermarked, DRM-free, included PDF and EPUB formats, and immediate download after purchase. Payment logos for VISA, MasterCard, American Express, Debit, and Invoice are shown at the bottom of the purchase section.

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**Emerging Electromagnetic Technologies for Brain Diseases Diagnostics, Monitoring and Therapy**

Editors: Crocco, L., Karanasiou, I., James, M., Conceição, R.C. (Eds.)

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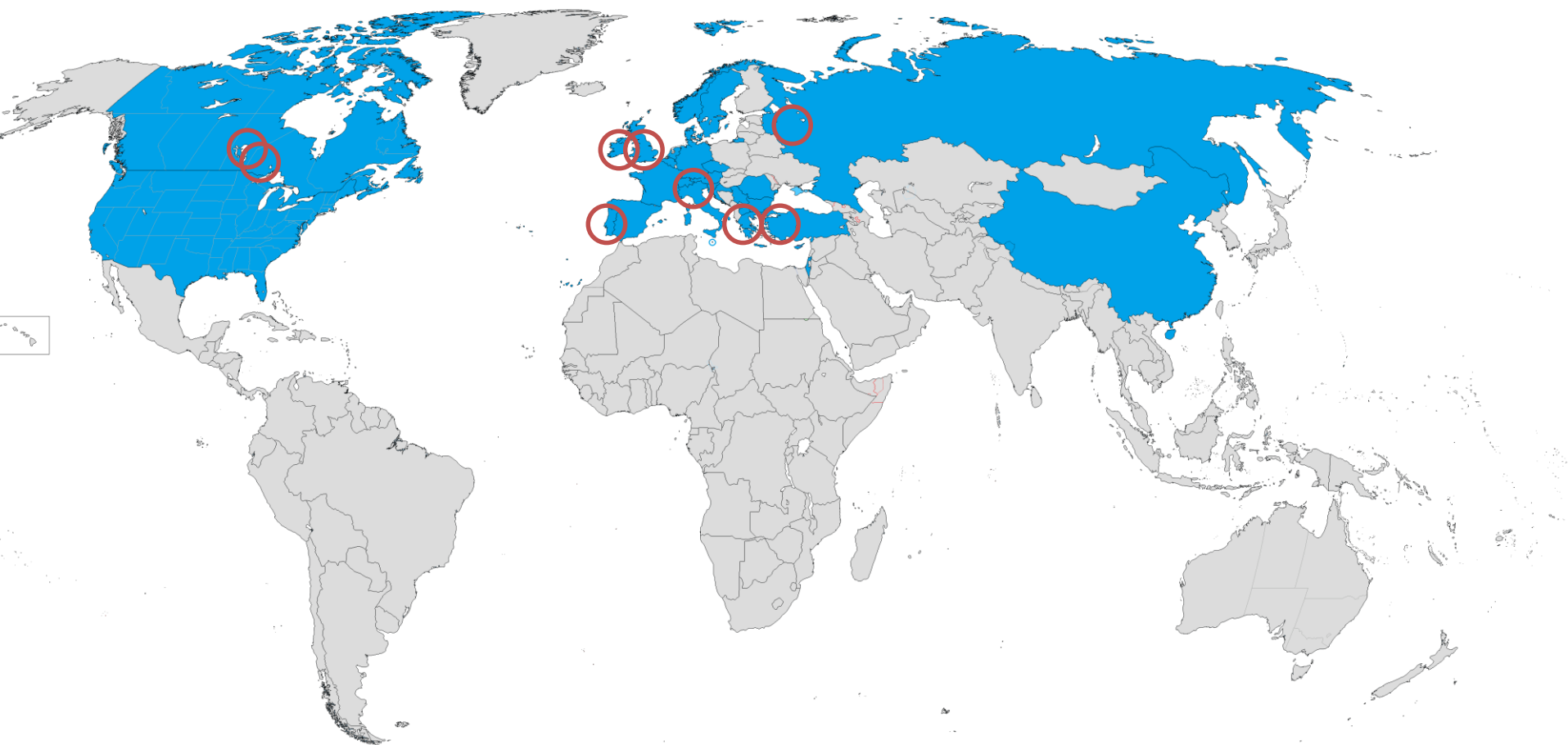
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# Who we are – Our contributions

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Geeps-L2S Breast Phantom, courtesy of Nadine Joachimowicz and Bernard Duchêne

# Who we are – Our contributions

Fragmented groups brought together as a big community  
Coherent + targeted research across Europe

Many submitted projects, with many accepted – for example:  
Eurostar project (with SMEs)

National and transnational projects (including ERC-STG)

New research areas, new MW applications

Inclusive countries with whole new areas of research (PT, CZ, MK)

New pilot studies/clinical trials

**ITN EMERALD**

**COST Action MyWave CA17115**

Many conference and journal papers

Many convened/special session at reputable international conferences

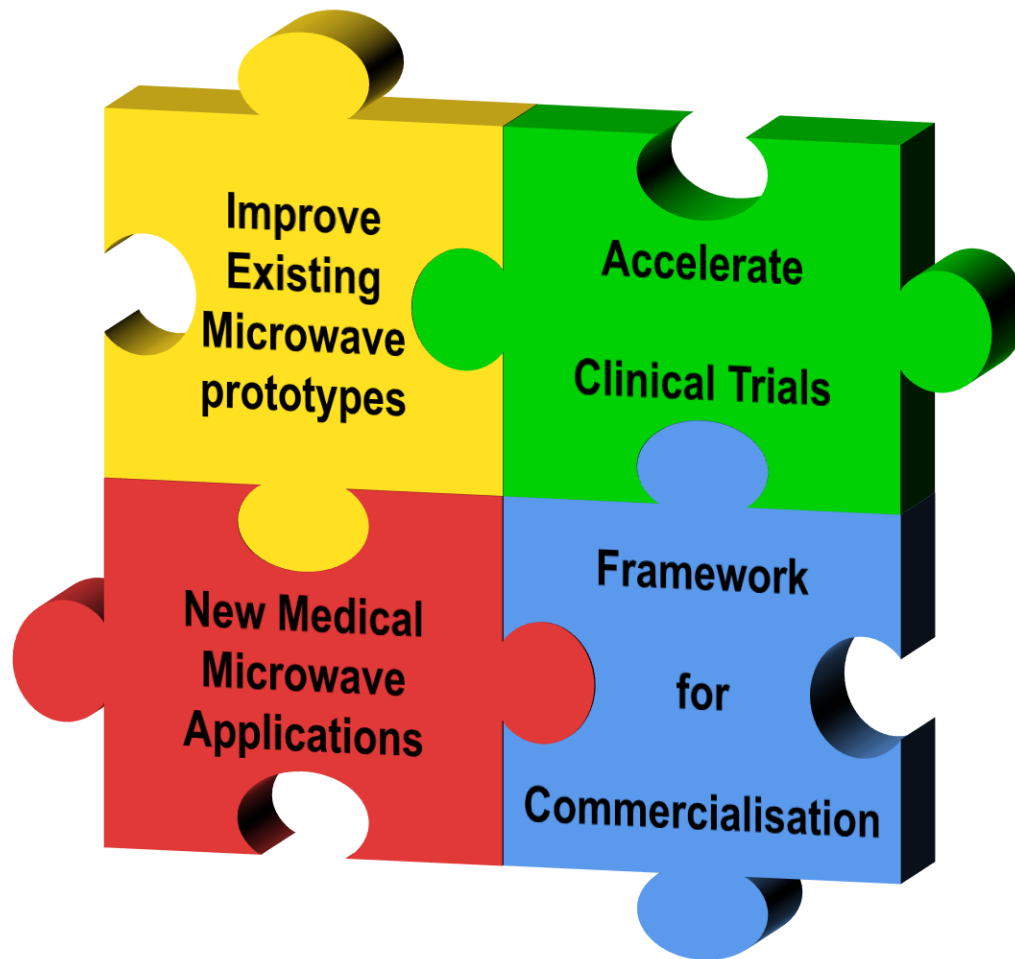
New products

New clinical trials

Poised to make an impact in healthcare

# COST Action - Challenges

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# Questions or Comments?

