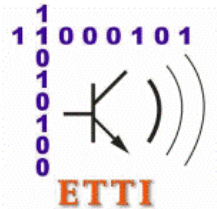




Wireless Power Transmission for Sustainable Electronics



WG4-Biomedical & Agriculture Applications

Assoc. Prof. Ioan Plotog, PhD



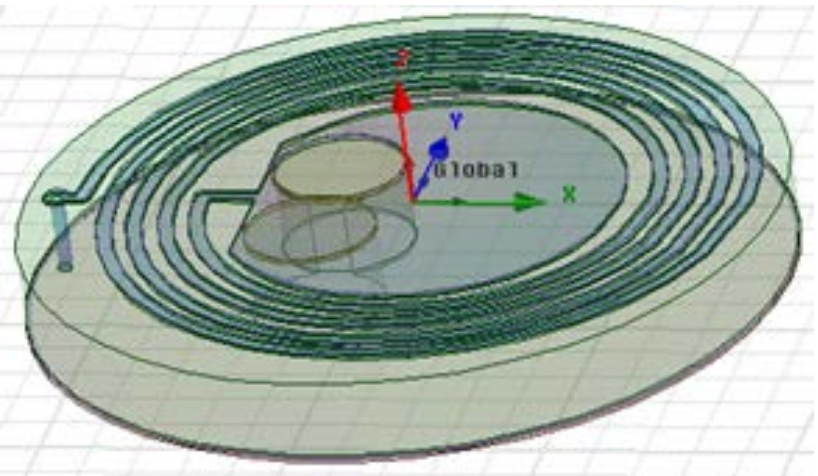
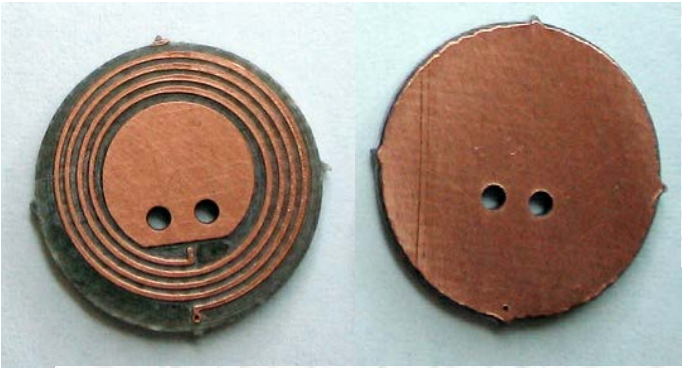
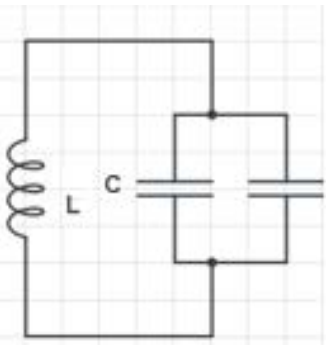
Content

- 1. Resonant Structures for Non-Invasive Medical Uses**
 - 1.1. Next step: Near field solution for resonant structure activation ?**
- 2. Collagen electrical properties studies relating to medical application**
 - 2.1. Collagen resonant bandage proposal**
 - 2.1. Near field solution for resonant collagen bandage activation ?**
- 3. Application to improve in vitro rooting plants**

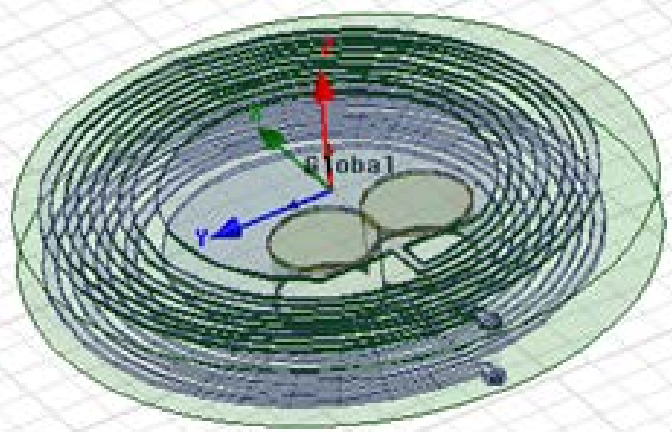


1. Resonant Structures for Non-Invasive Medical Uses

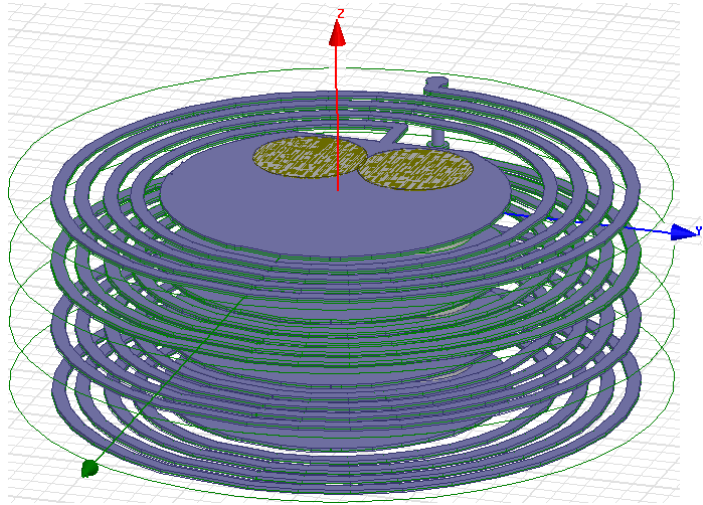
“Electrical acupuncture” using passive resonant structures:



Top layer coil



Double layer coil

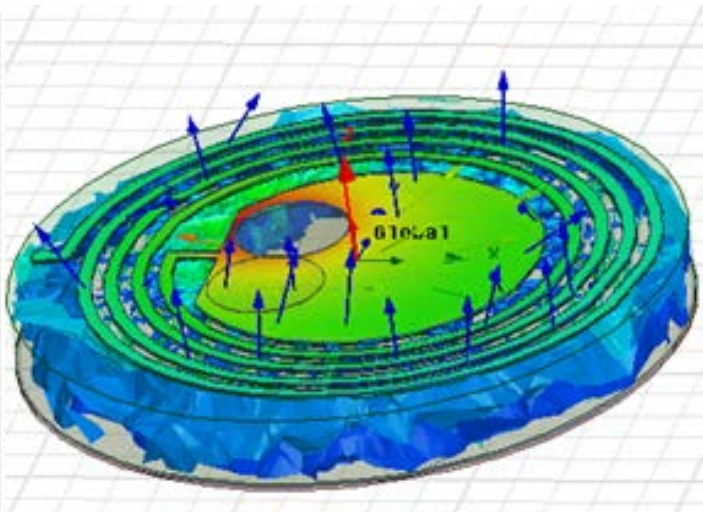
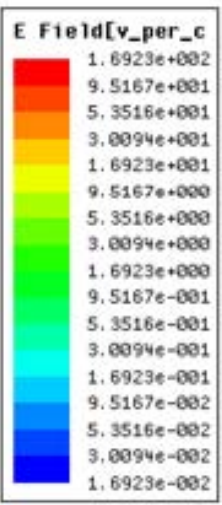
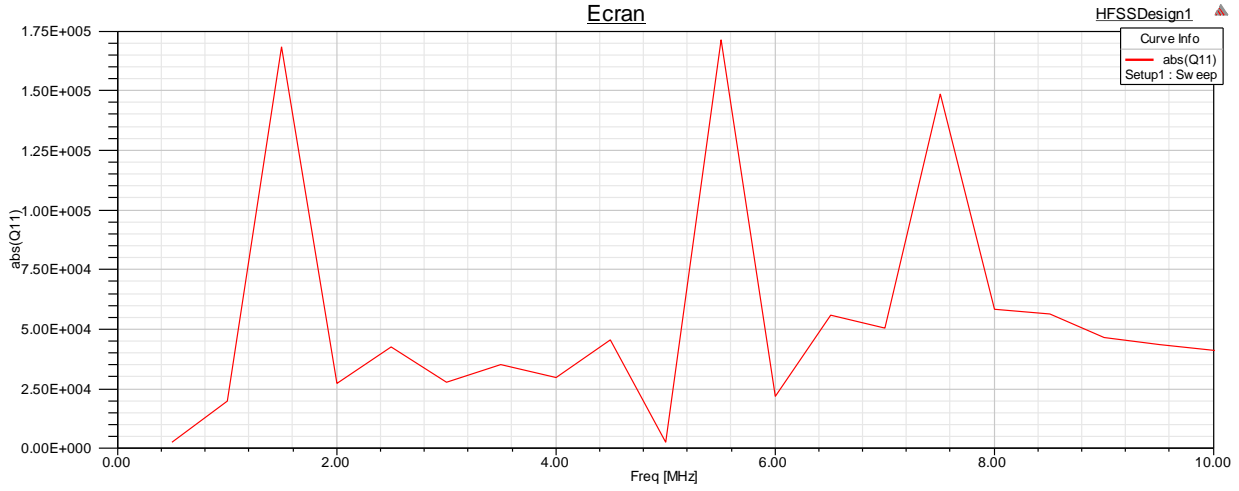


Multilayers coils

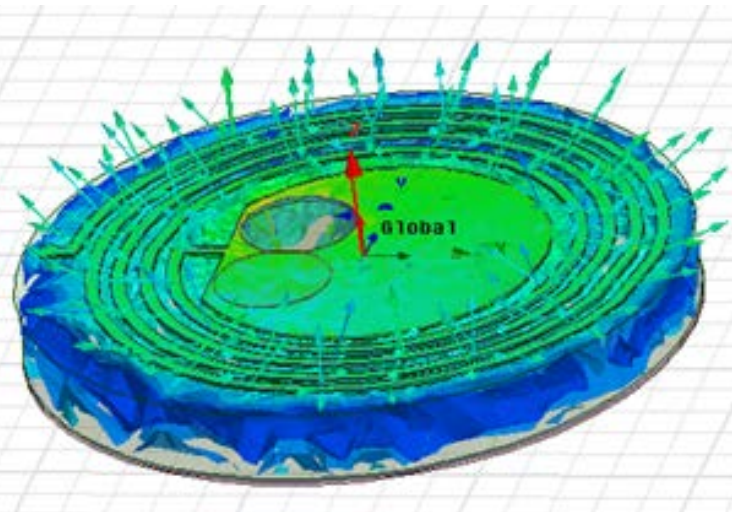
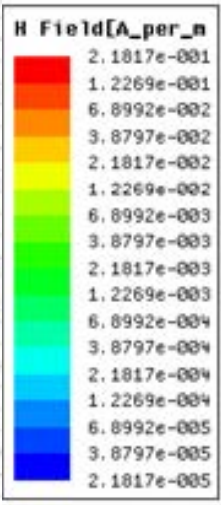


1. Resonant Structures for Non-Invasive Medical Uses

Top layer coil structures



E field

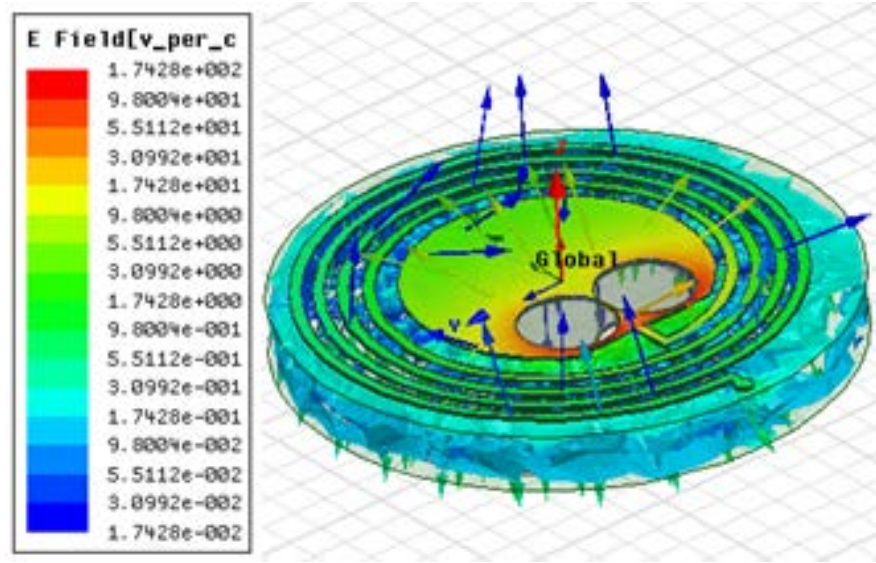
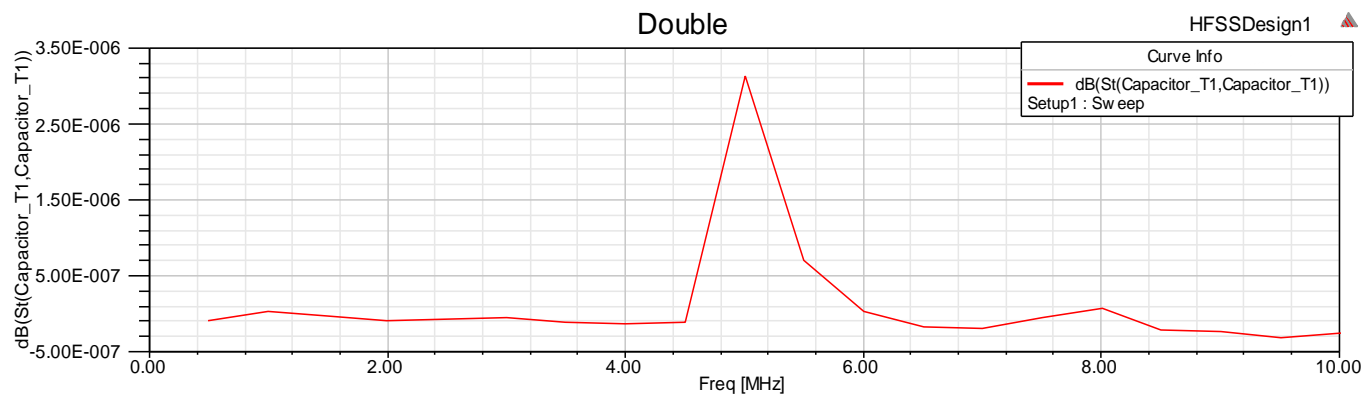


H field

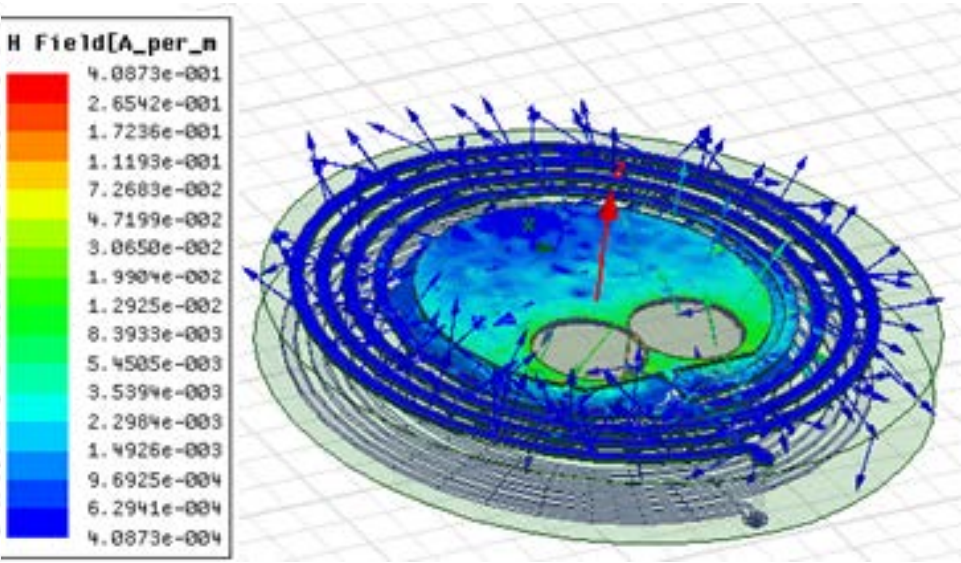


1. Resonant Structures for Non-Invasive Medical Uses

Double layer coil structures



E field

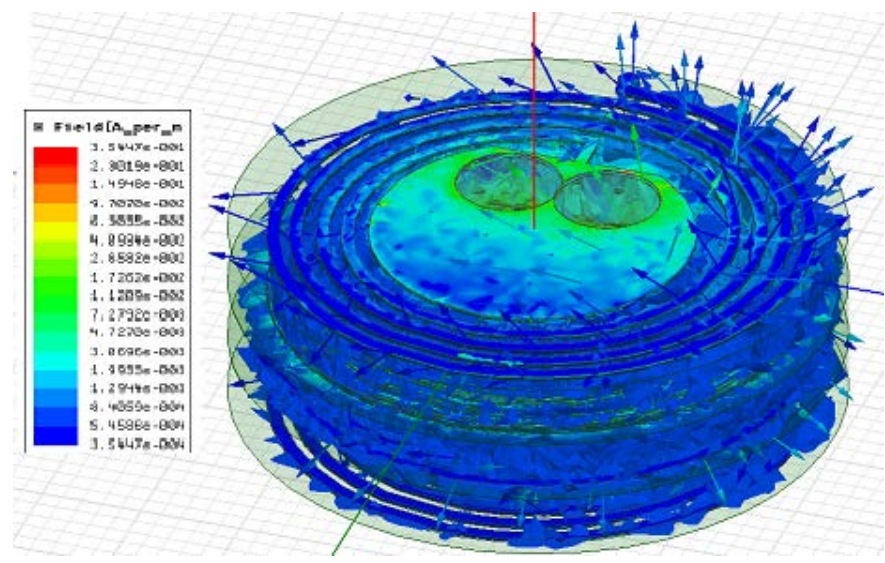
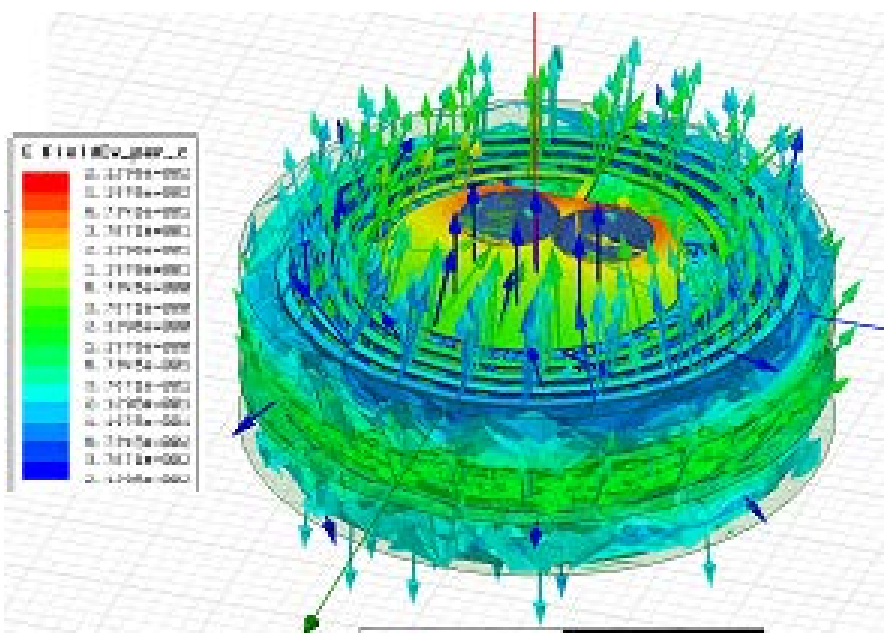
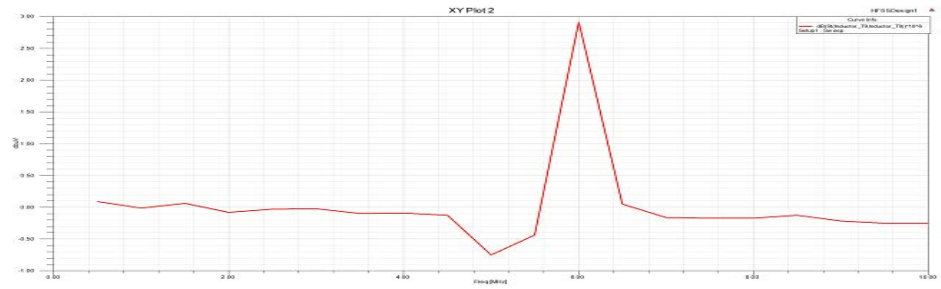


H field



1. Resonant Structures for Non-Invasive Medical Uses

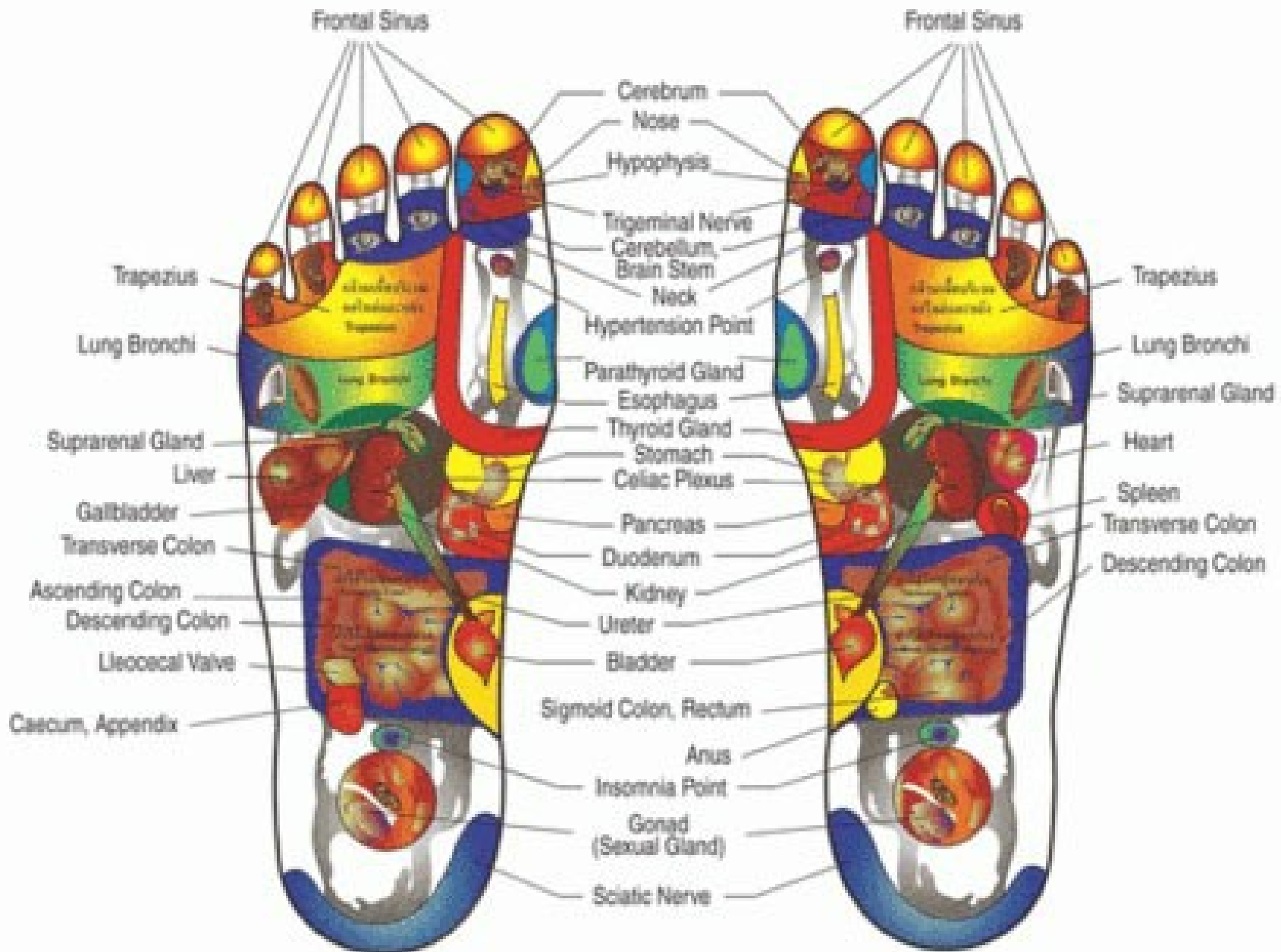
Multilayer coils structures



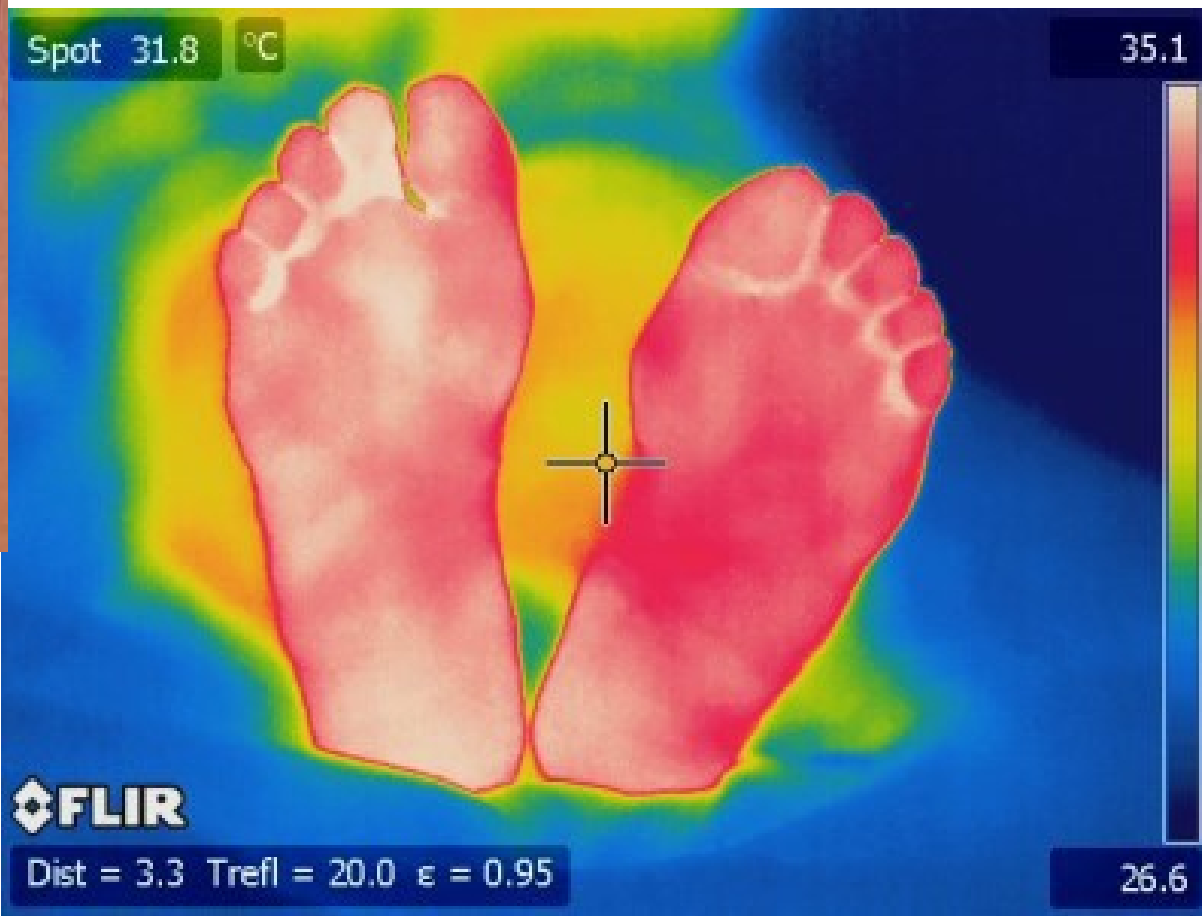
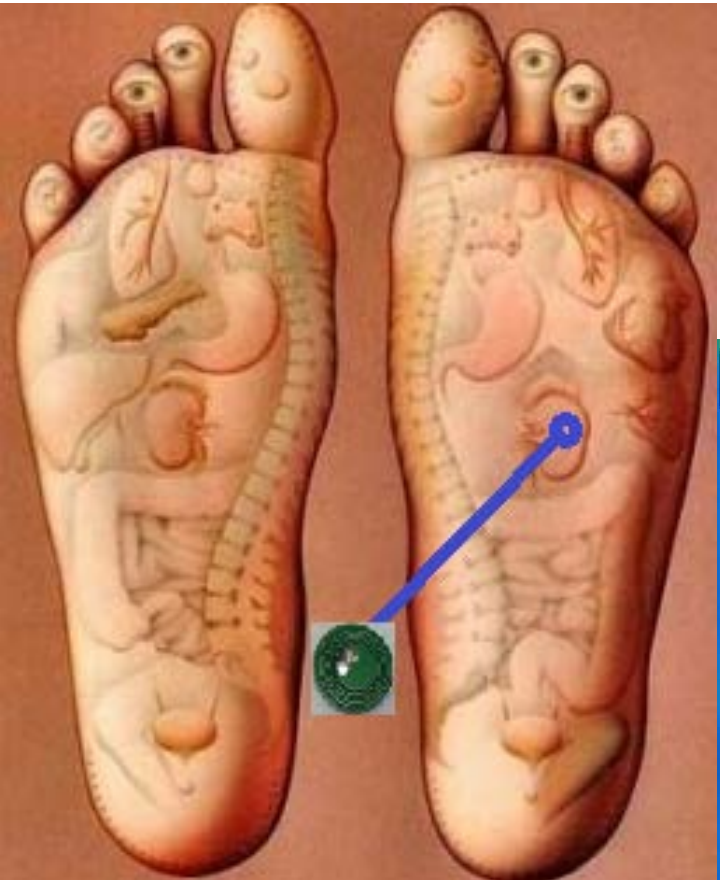
E field

H field

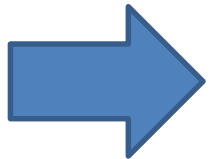




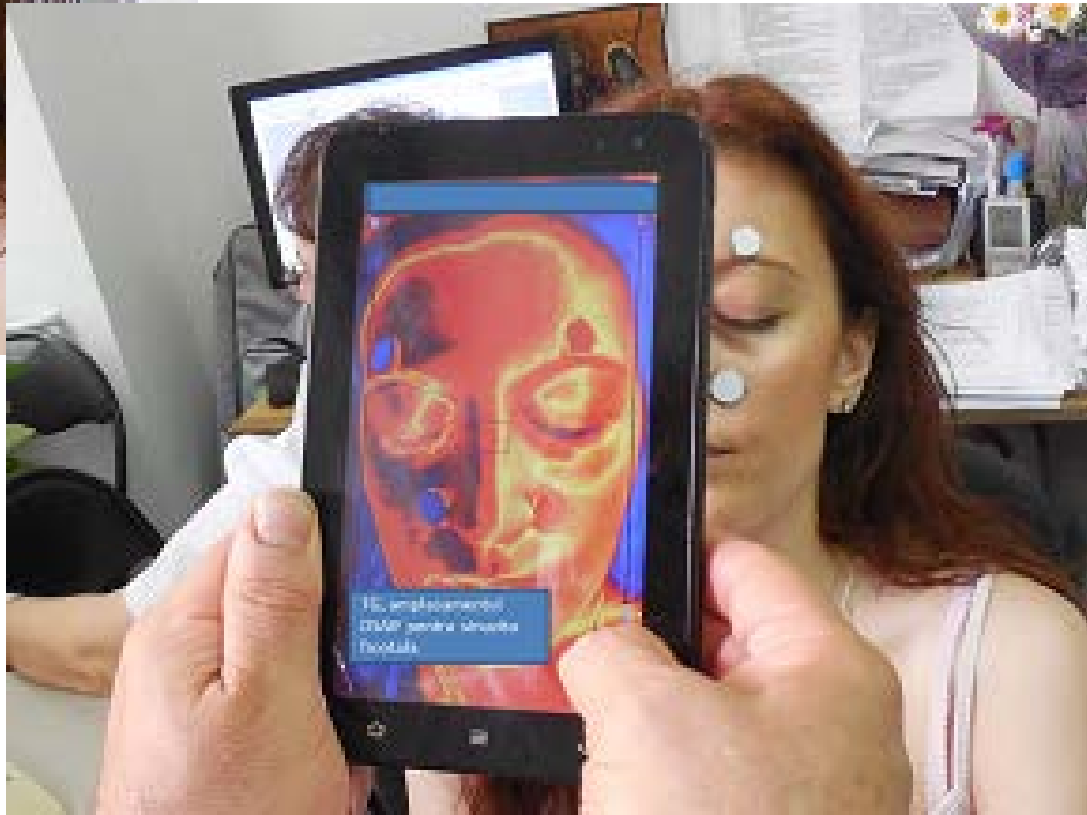
1. Resonant Structures for Non-Invasive Medical Uses



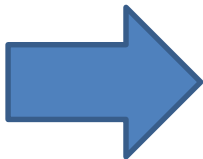
After left leg stimulation



1. Resonant Structures for Non-Invasive Medical Uses

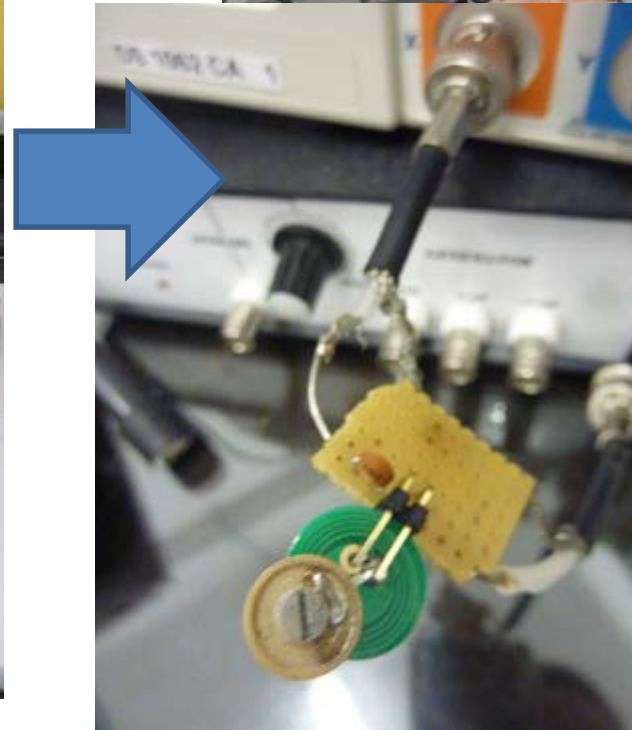


**Response
in case of
sinusitis**



1. Resonant Structures for Non-Invasive Medical Uses

1.1. Near field solution for resonant structure activation ?



2. Collagen electrical properties studies relating to medical application

Collagen is the main structural protein found in animal connective tissue, yielding gelatin when boiled.

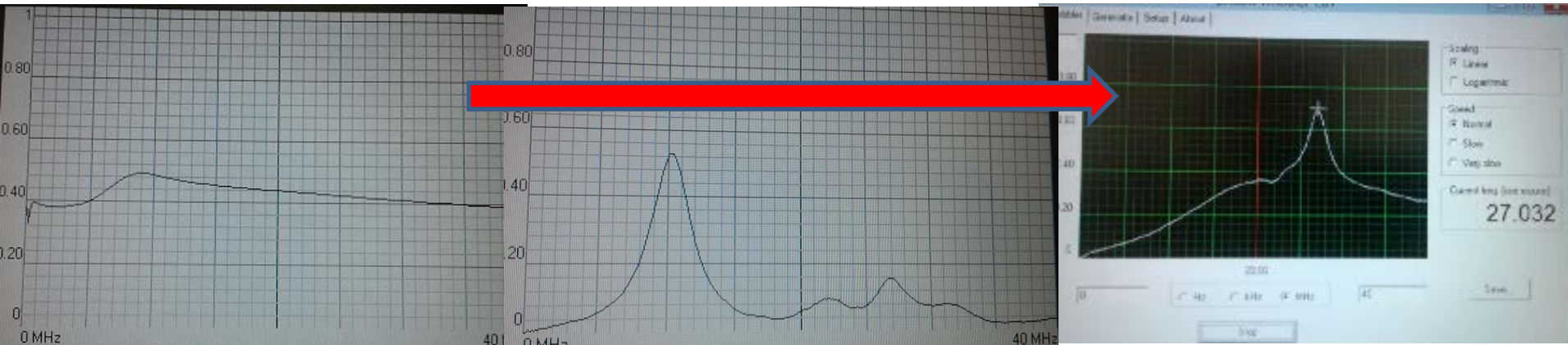
Among these, collagen is the major structural protein and is the most abundant in the human body.

It is in studies the possibility to use the collagen as support for medical treatment at the level of deep wounds.



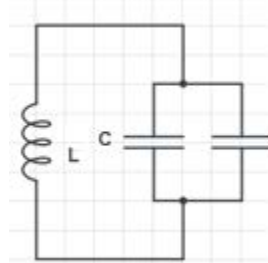
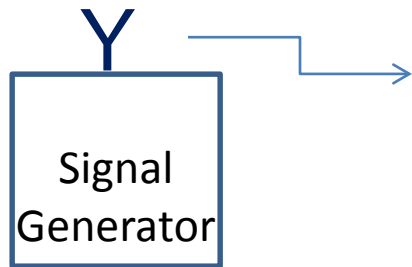
2. Collagen electrical properties studies relating to medical application

The collagen present 27 MHz resonance frequency after 24 h



2. Collagen electrical properties studies relating to medical application

2.1. Collagen resonant bandage proposal



A strip of material containing COLLAGEN used to bind a wound or to protect an injured part of the body.

2.1. Near field solution for resonant collagen bandage activation ?

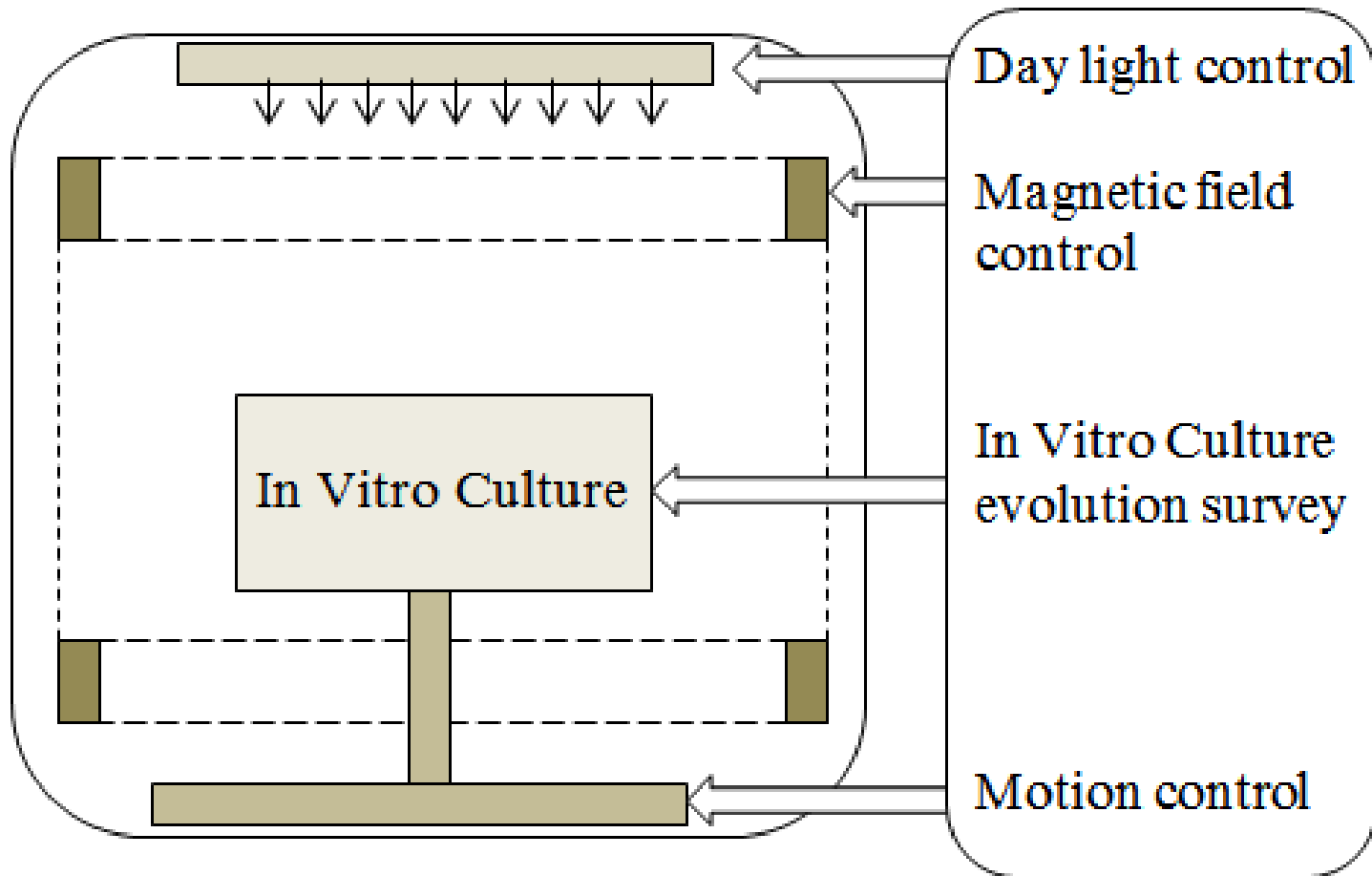
STSM Applicant: Ms Catarina Lopes,
University Of Beira Interior, Covilhã(PT)

STSM Topic: New materials and fabrication techniques for the development of substrate integrat textile antennas

Host: Hendrik Rogier, Ghent University, Ghent(BE),

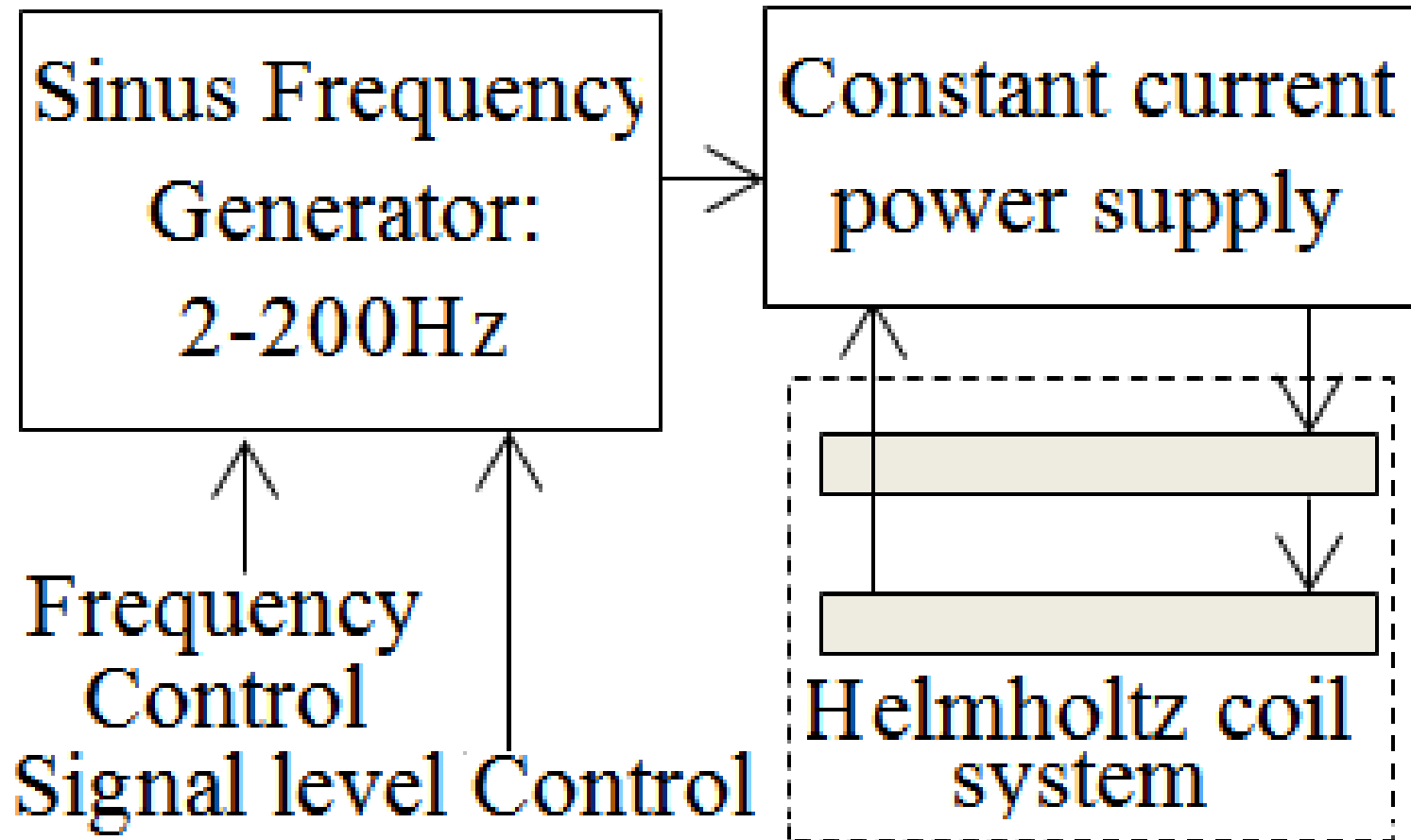
3. Application to improve in vitro rooting plants

ELF application: Minilab for Evaluating the Influence of magnetic Field over “In Vitro Cultures”



3. Application to improve in vitro rooting plants

XXXXX



3. Application to improve in vitro rooting plants

Actual stage of the research



**Next step:
Applications for increased
efficiency in grafting trees**

Conclusions

- **The active solutions are under research;**
- **Could be compatibility problems;**
- **Are open subjects for collaborations.**

ACKNOWLEDGMENT

The author would like to express his gratitude for continuous support and partnership to:

**Dr. Corneliu MOLDOVAN, Assoc. Prof.,
Romanian National Institute for Alternative
and Complementarily Medicine**

Drd. Ing. Marian VELVCEA, Doctor Tech, Srl.

Thank you for your attention

Eng. Ioan Plotog, PhD

Assoc. Prof.

Executive Director,

Technological and Business Incubator, CETTI-ITA

Center for Technological Electronics and Interconnection

Techniques, UPB-CETTI

“Politehnica” University of Bucharest, UPB

Email: ioan.plotog@cetti.ro

<http://www.cetti.ro>

Phone: +40214103108; +40214024650

Mobil: +40745186950; Fax: +40214103118

Mail Address: Splaiul Independenței nr. 313,
060042 Bucharest, Romania

Headquarters: Bd. Iuliu Maniu nr.1- 3,
Leu Campus, A Building, room AS01
Bucharest, Romania

