

## HEAT TRANSFER IN BIOMEDICAL APPLICATIONS

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Heat transfer is involved into many biomedical applications. Because cells and tissue integrity depends on temperature, it can have a role in preserving these (bio-preservation). In the last few years, thermal therapy is becoming more significant for researchers, due to its potential, and many examples can be done. Necrosis can be induced in some cancers like liver or esophagus cancers by means of hyperthermia treatments, in which for example microwaves or radiofrequencies can be employed for this purpose. A heat-induced magnetic field can be used to drive nanoparticles in tumor cells that are difficult to treat with conventional surgery. Other examples of heat transfer in biomedical applications can be radiofrequency cardiac ablation, in which heat is employed to destroy abnormal conduction pathways through the myocardium, laser angioplasty, thermal drug delivery, and so on.

Thermotherapy description is based on bioheat transfer modeling, and it is also related to human body thermoregulation. Many variables like arterial, venous and capillaries blood flow rate, blood perfusion, metabolic heat generation, thermophysical properties of blood and tissues can affect heat transfer and temperature distribution within the human body.

The scope of this mini symposium is to regroup the most recent original research contributions, in order to track the route for innovative clinical treatments. Potential topics include, but are not limited to:

- Heat transfer in dentistry,
- Hyper- and hypo- thermia in biology,
- Thermal therapies,
- Heat transfer in living tissues,
- Heat transfer for cardiac or tumor ablation,
- Tumors detection,
- Thermoregulation,
- Medical devices thermal management,
- Heat-induced magnetic nanoparticles for tumor treatment,
- Heat transfer in aged people.