

**Abstract ID-063**

## **THERMAL MODEL FOR A SMART COOLING VEST FOR WOMEN WITH HOT FLASHES**

**Kaspar Jansen, Geertje Hofstee, Marco Rozendaal**

*TU Delft, The Netherlands*

*k.m.b.jansen@tudelft.nl ; geertje\_hofstee@hotmail.com ; M.C.Rozendaal@tudelft.nl*

**Keywords:** Peltier Devices, Smart Textile, Hot Flashes

**Summary:** Women in the menopause have too few oestrogen which hampers the temperature regulation of the body. As a result these women suffer from hot flashes. During a hot flash the skin temperature can increase by 4 to 7 °C. Hot flashes typically occur 10-15 times per day, are located mainly in the upper part of the body and last one to two minutes.

In this paper we discuss the design of a simple and easy to wear cooling vest, equipped with a series of Peltier cooling devices, a thermocouple to detect the start of a hot flash as well as embedded electronics to control the cooling. We discuss and model the temperature response of the Peltier devices and propose two types of cooling strategies: alternated switching and stacking of the devices.