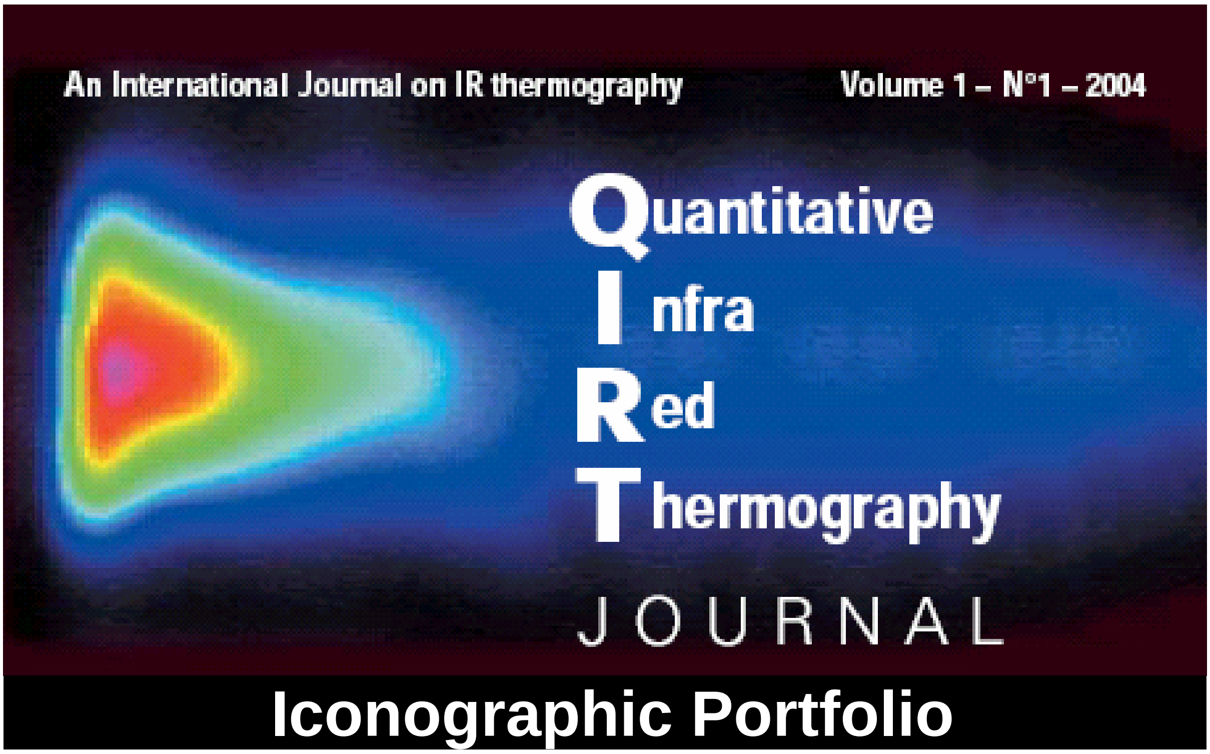
QIRT Journal Iconographic Portfolio

Vol. 1 N° 1 (2004)



Foreword

In thermographic works, images are very important. It is not always possible to reproduce them with the desired quality, mainly for cost reasons, especially for colour images.

To solve this problem, the QIRT Journal Portfolio presents all the images given in the papers published in the Journal issues. Readers can load and print these images to help them to better appreciate the works presented in the journal.

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Autoregressive algorithms and spatially random flash excitation for 2D non destructive evaluation with infrared cameras

by Jean-Christophe Batsale, Jean-Luc Battaglia, O. Fudym

QIRT Journal, 1, 1, pp. 5-20

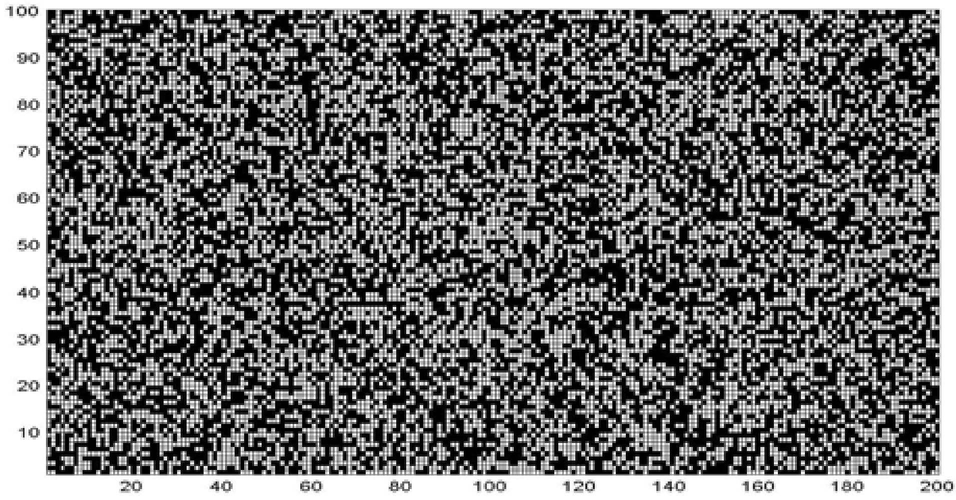

Figure 5. *2D random field used to create the flash excitation, printed on a transparent film used for the experimental device(see fig 1).*

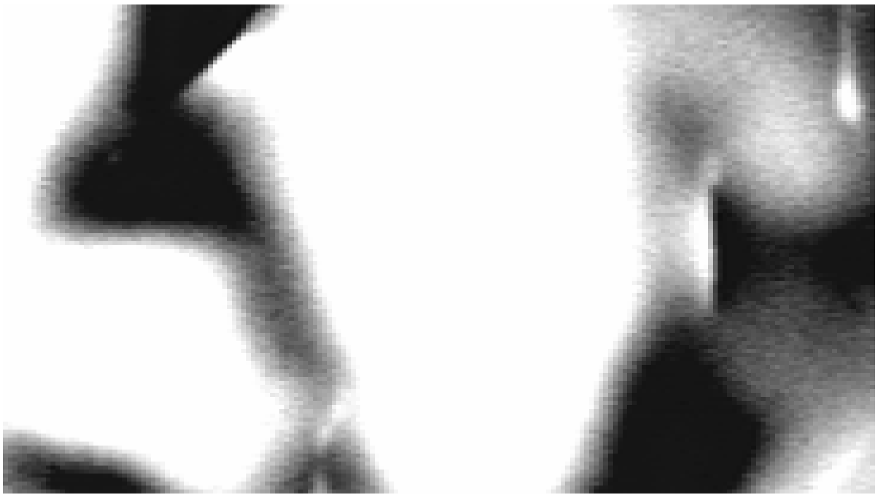

Figure 6 . *Measured temperature field a few moment after the excitation*

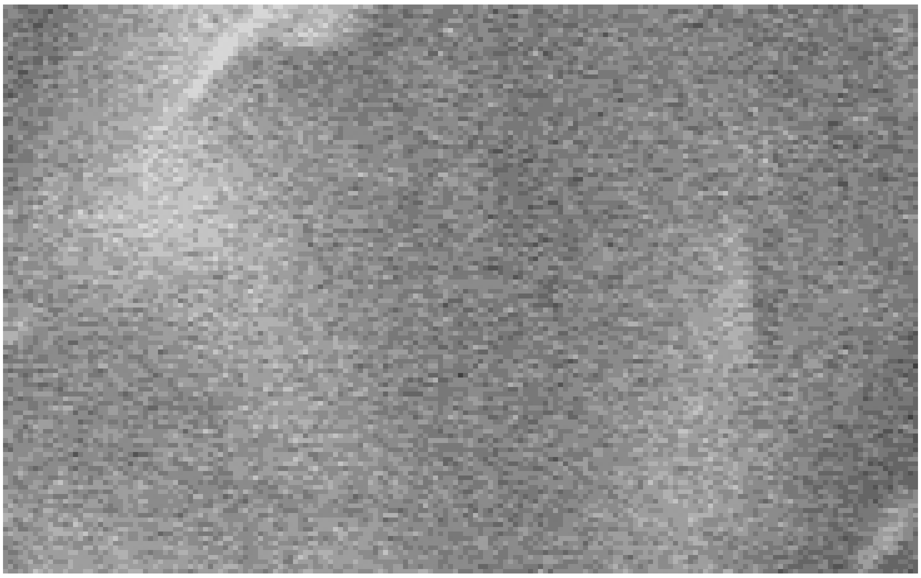

Figure 7. *Measured temperature field, about thirty seconds after the excitation*

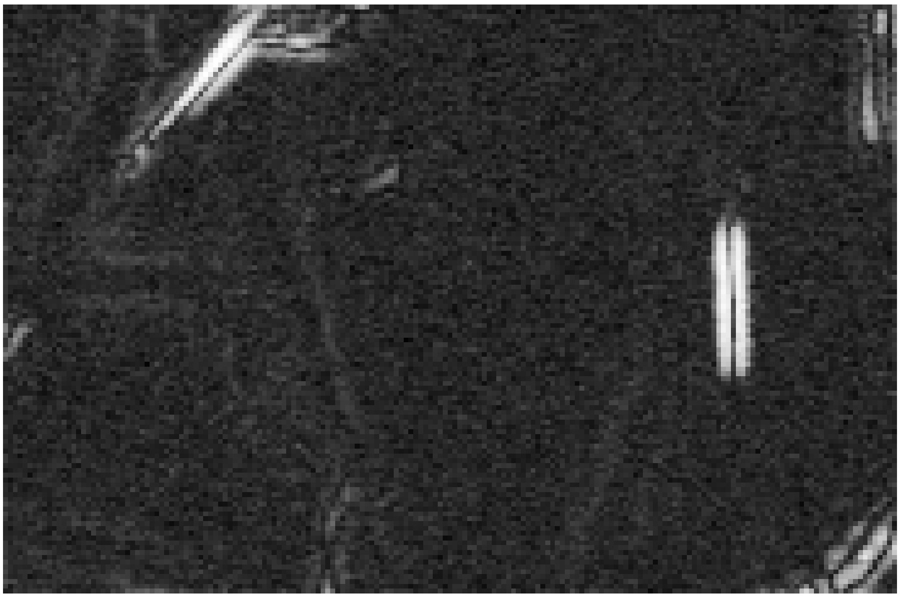

Figure 8. *Result of the estimation with expression [*8]

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Lockin thermography with eddy current excitation
by Gernot Riegert, Thomas Zweschper, Gerd Busse
QIRT Journal, 1, 1, pp. 21-32

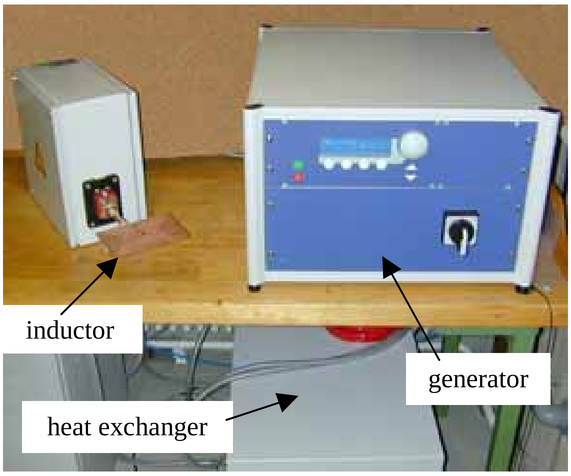

Figure 2. *Experimental set-up of the ILT system*

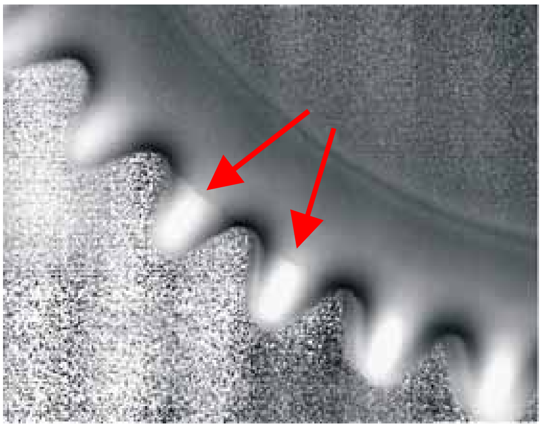

Figure 3. *ILT on gearwheel with cracks. The phase image at 1 Hz reveals the cracks as very fine lines (monitored area 40x35 mm).*

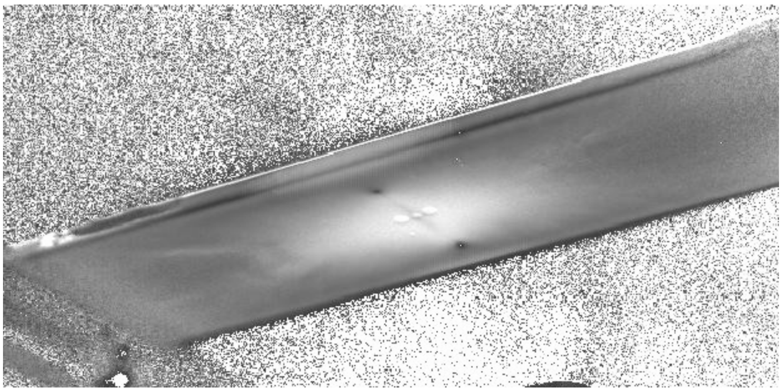

Figure 4. *Tensile specimen with crack: phase image at 1Hz (monitored area 240x75 mm).*

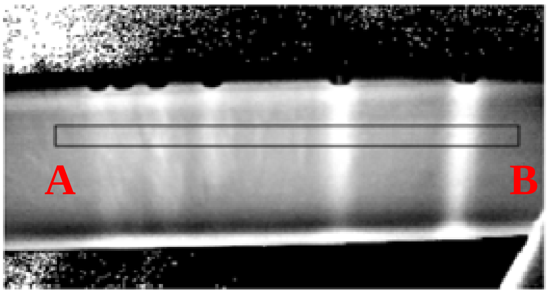

Figure 5 (Top left). *Phase image at 0.8 Hz.*

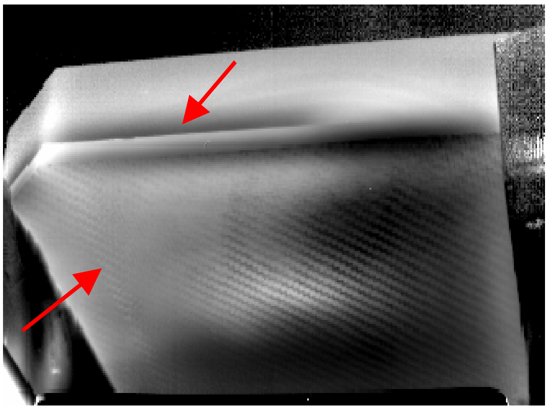

Figure 6. *ILT phase image of C/C-SiC sample with delamination at 0.1 Hz. Bright area is delaminated (monitored area 185x150x32 mm).*

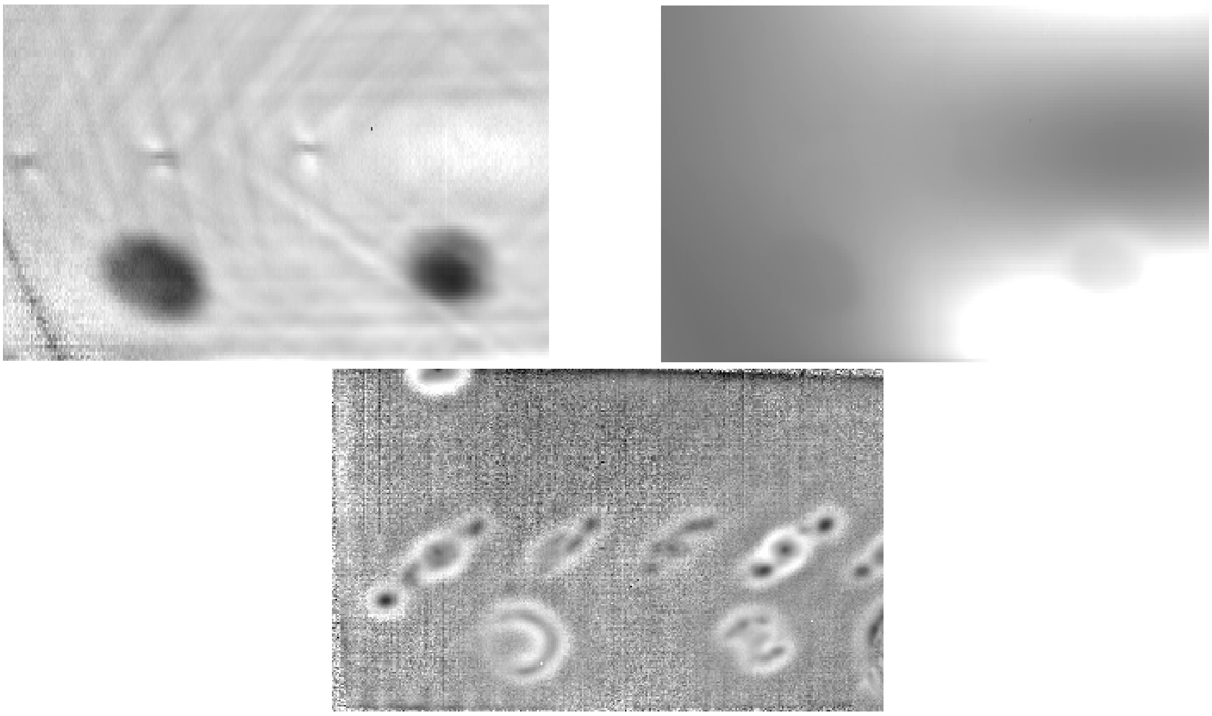

Figure 7. *CFRP sample with 4 impact damages and two piezo-actuators (glued on the rear side). Top, left: phase image at 0.1 Hz (ILT). Top, right: amplitude image 0,1 Hz (ILT). Bottom: phase image at 0.1 Hz (ULT) (monitored area 160x130 mm).*

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Thermoinductive investigations of magnetic materials for surface cracks

by Beata Oswald-Tranta

QIRT Journal, 1, 1, pp. 33-46

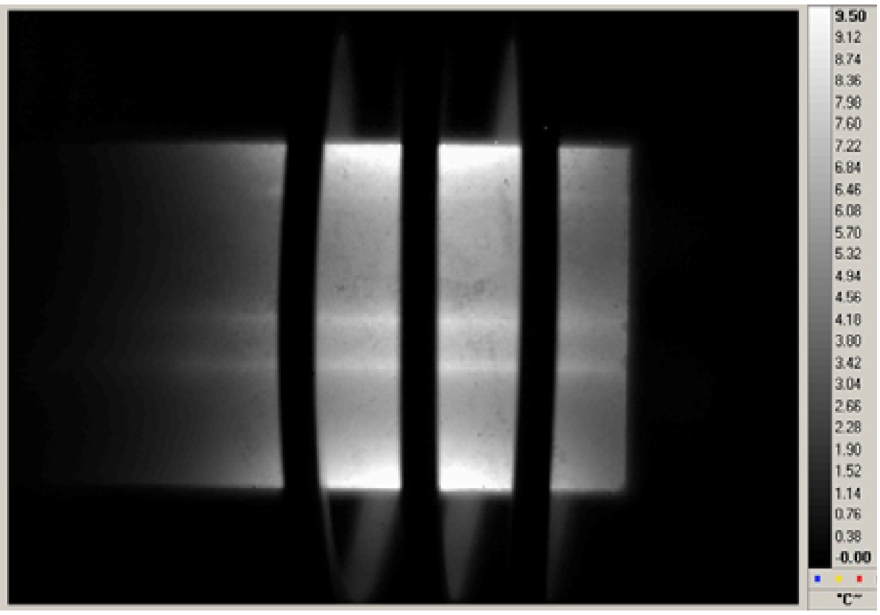

Figure 1. *Infrared image of an inductive heated steel sample. A temperature increase around the two parallel cracks with a depth in the range of 1-2,5 mm can be clearly observed.*

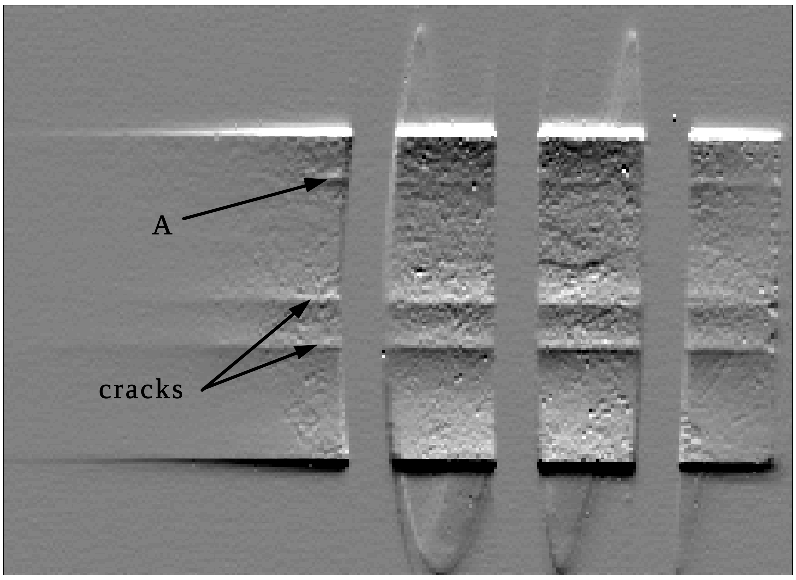

Figure 2. *y-gradient view of the infrared image shown in Figure 1. The exact position of both cracks can be clearly identified. The local gradient at 'A' suggests that there is an additional defect in the material. This defect had not been anticipated nor is it visible on the surface of the material.*

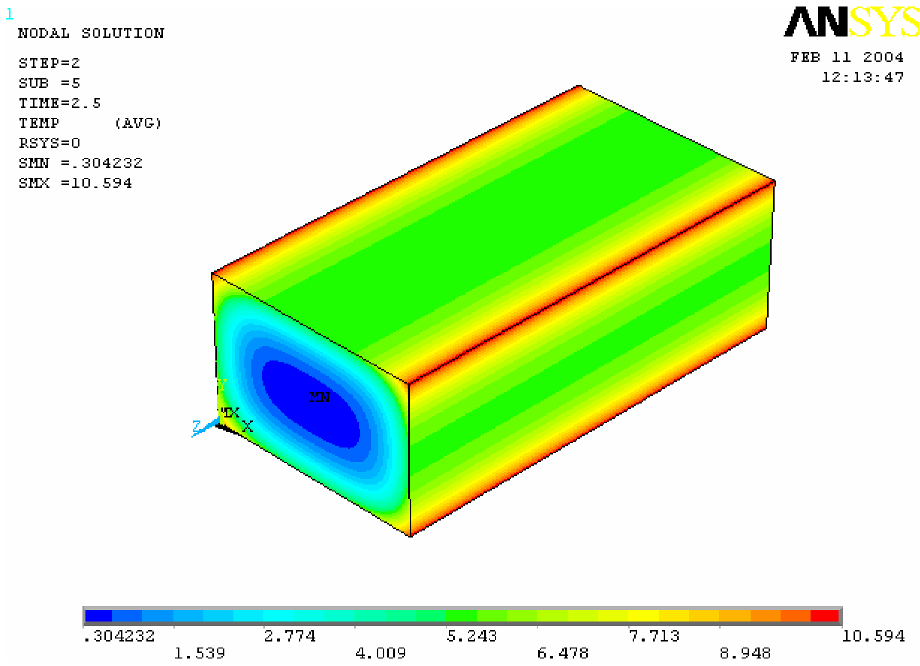

Figure 3. *Temperature distribution simulated by the heat transfer module of ANSYS. Uniform surface heat flux has been applied to the four faces of the parallelepiped.*

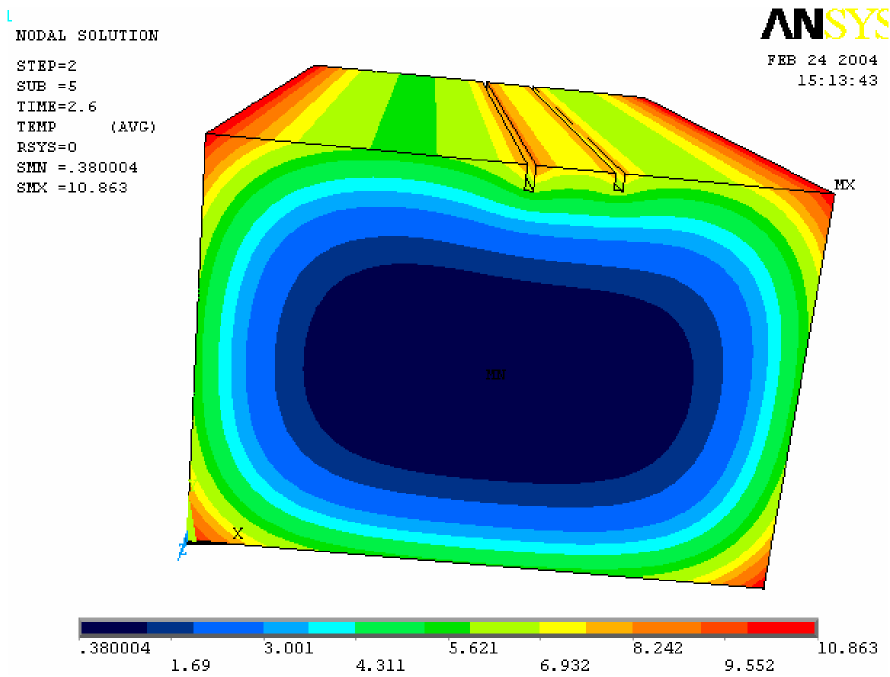

Figure 10. *Temperature distribution simulated by the heat transfer module of ANSYS. Uniform surface heat flux has been applied to the four faces of the parallelepiped, and to the three faces within both longitudinal cracks.*

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Determination of the conjugate heat transfer performance of a turbine blade cooling channel

by Roberto Fedrizzi, Tony Arts

QIRT Journal, 1, 1, pp. 71-88

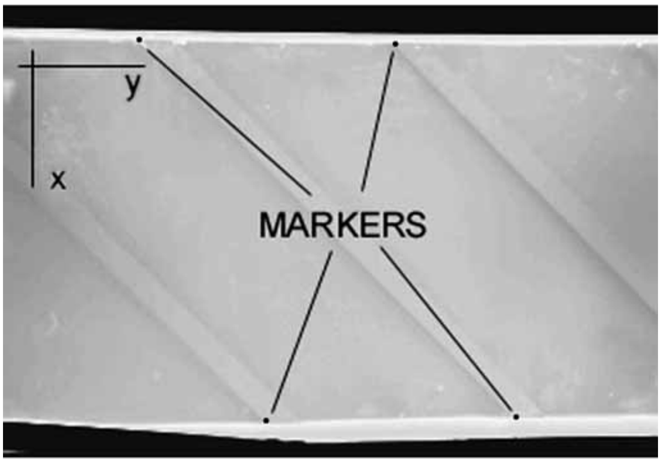

Figure 1. *Spatial references applied to the thermogram.*

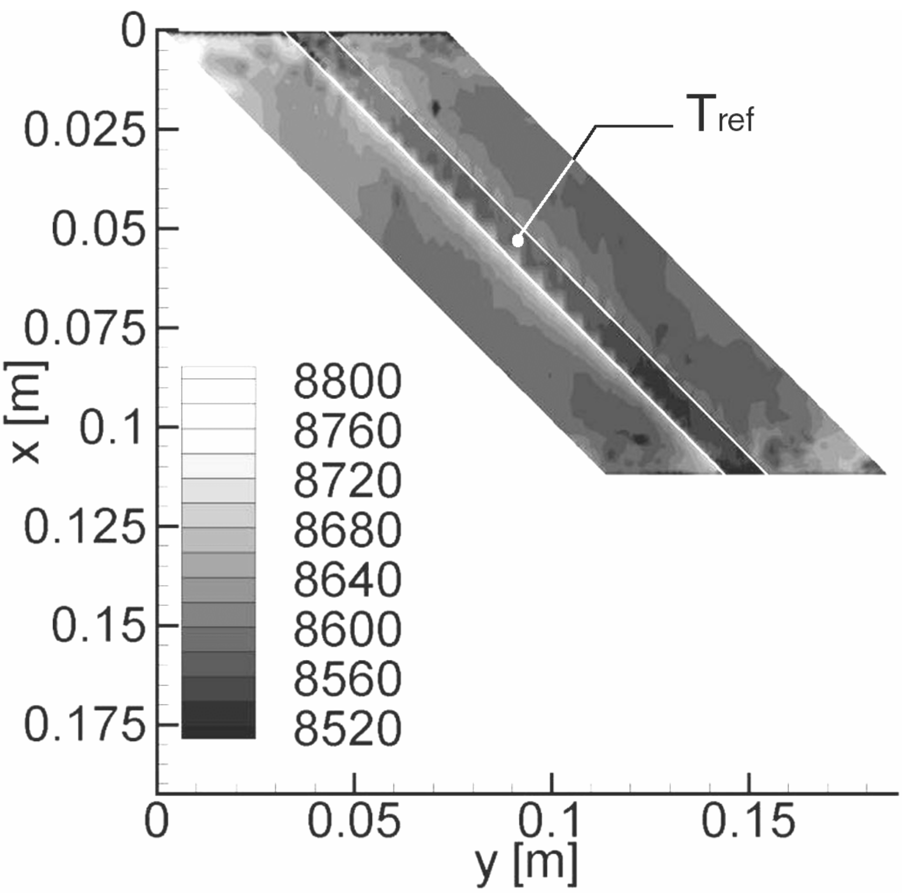

Figure 8. *Spatial correction surface.*

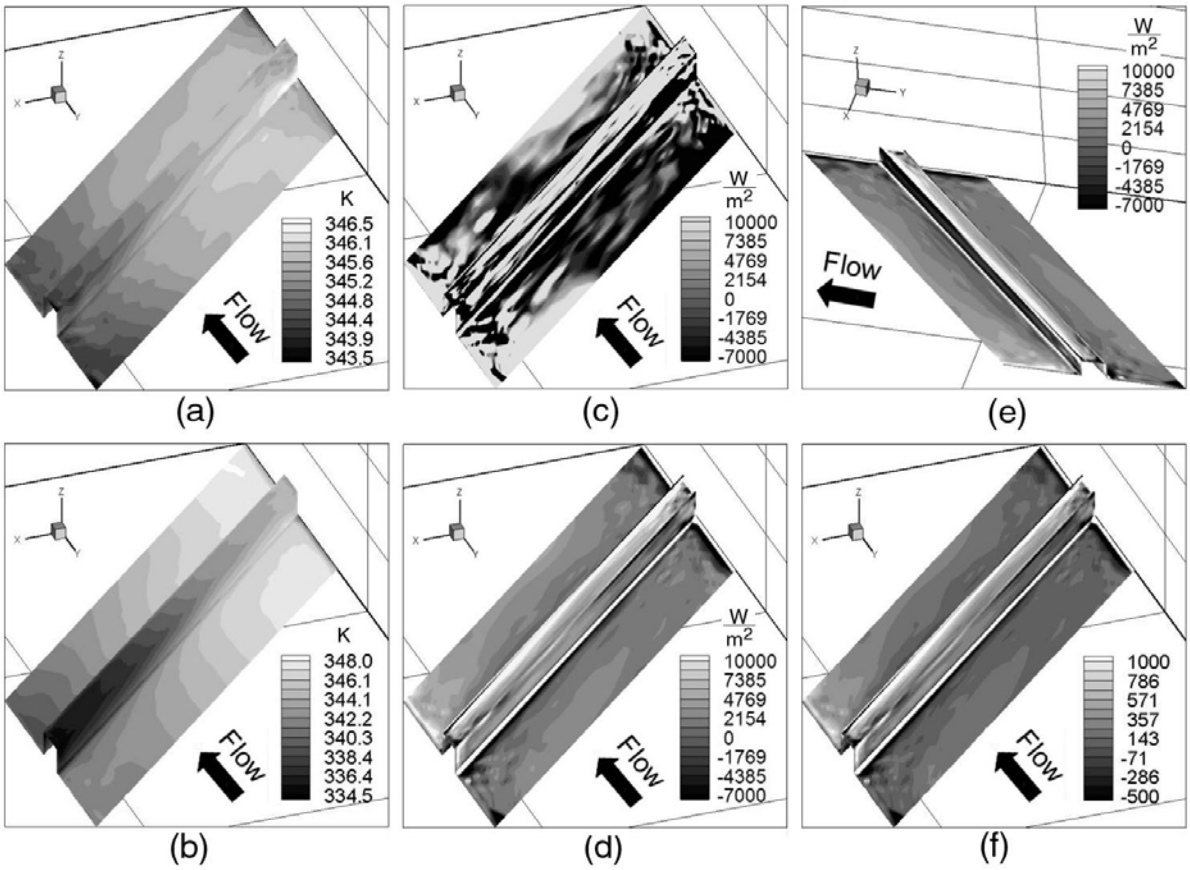

Figure 2. *Heat transfer performance; (a) copper, temperature; (b) steel, temperature; (c) copper, heat flux; (d) steel, heat flux upstream; (e) steel, heat flux downstream; (f) steel, Nusselt number.*

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Thermographic imaging of free carrier density in silicon for solar cells

by Martin C. Schubert, J. Isenberg, Stephan Riepe, Wilhelm Warta

QIRT Journal, 1, 1, pp. 89-98.

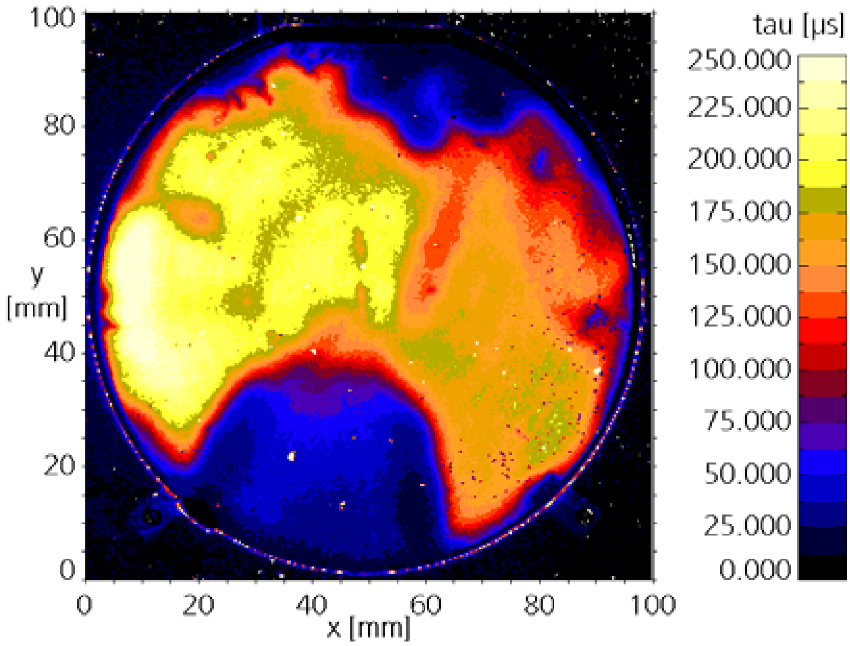

Figure 3. *Absorption CDI image of FZ-sample with thermal oxide and reduced lifetime problem due to a contaminated carrier system*

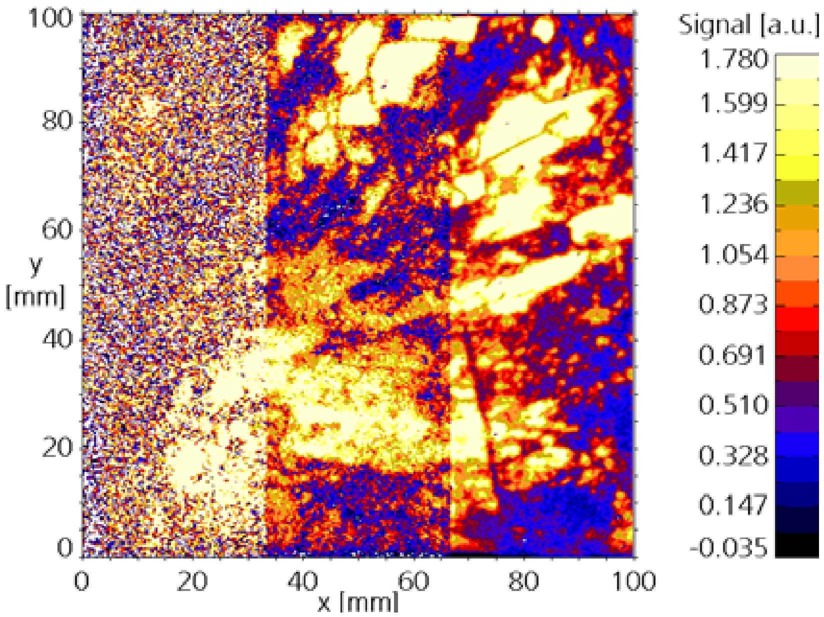

Figure 5. *Emission CDI image of a multicrystalline sample with SiN_x-passivation at different wafer temperatures. From left to right: 40 °C, 59 °C, 100 °C. Measurement time was only 1 s.*

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Investigation of nucleation and propagation of phase transitions in TiNi SMA
by Elzbieta Pieczyska, Stefan Gadaj, Wojciech Nowacki, Hisaaki Tobushi
QIRT Journal, 1, 1, pp. 117-128.

Figure 1. *Photograph of the experimental equipment*

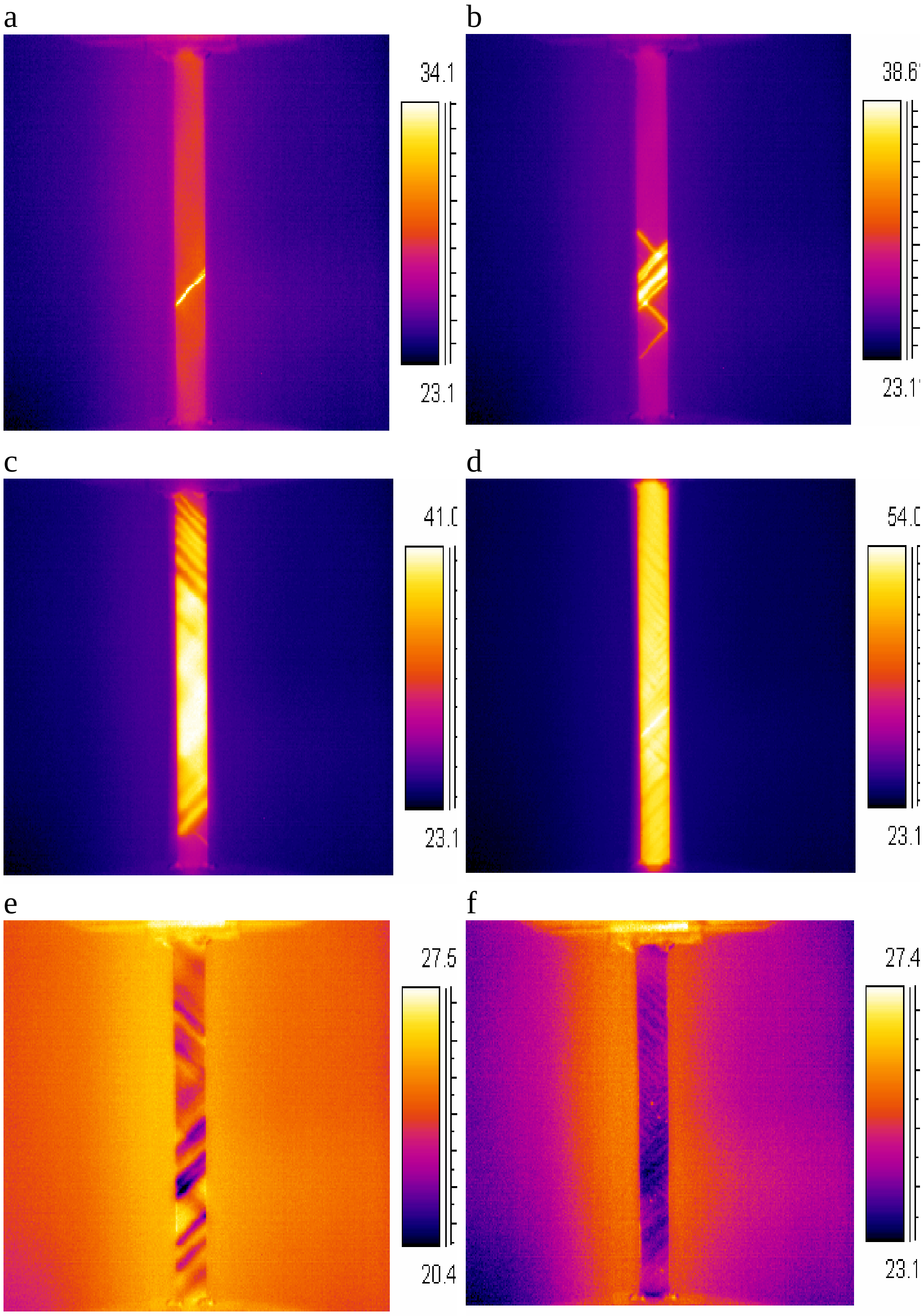

Figure 5. *Temperature distribution of TiNi subjected to the reverse transformation during tension test at room temperature. The letters correspond to the proper points of the stress-strain curves shown in Fig.2: e – during unloading, f – after 3.26 s of unloading.*