

B.T.S. ELECTRONIQUE / ELECTROTECHNIQUE

SESSION 2004

ANGLAIS

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Tout autre matériel est interdit*

SESSION 2004		CODE : LVE9	
B.T.S. ELECTRONIQUE / ELECTROTECHNIQUE			
EPREUVE D'ANGLAIS			
Durée : 3 heures	Coefficient : 2	Nombre total de pages : 3	N° de page : 1/3

HAND-HELD SCANNER COULD DETECT TUMOURS

Sergio Pistoï, Rome

1 Two independent studies appear to show that tumours can be detected by scanning people with a hand-held device, similar to the metal detectors used to frisk airline passengers.

With the help of Turin-based aerospace firm Galileo Avionica physicist Clarbruno Vedruccio who has developed the device, built the slimline scanner.

5 Called the Trimprobe—short for Tissue Resonance Interferometer—the device is a white plastic baton about the size of a Pringles tube. Inside it, an antenna produces a beam of microwaves that vary in frequency from 400 to 1350 megahertz.

The power in the signal is less than 1 00 milliwatts. To use it, the baton is simply swiped over the body—with no need for patients to undress.

10 When the Trimprobe's electromagnetic signal hits biological tissues, Vedruccio says they resonate at certain frequencies and produce a signal that interferes with the original incoming signal. The amount of interference is then detected by a receiving antenna in the probe.

Unlike MRI scanners, Vedruccio's system does not produce an image of an organ. Instead, a computer displays a sequence of bands showing the amount of interference at different frequencies.

15 Vedruccio and his colleagues found that tumours generate strong interference at around 400 megahertz. They do not yet know why this happens, but believe that the dielectric constant of tumour tissue - a measure of a material's ability to sustain an electric field - differs from that of healthy tissue.

In clinical trials at the San Carlo Borromeo Hospital in Milan, the scanner was able to predict prostate tumours in 93 per cent of cases that were later confirmed by biopsy.

20 “The results are amazing. The scanner seems ideal for mass-screening of cancer because it is rapid, non-invasive and highly sensitive”, says Carlo Bellorofonte, the urologist who led the trial.

Meanwhile a separate study on 200 women carried out at the European Institute of Oncology in Milan found that the prototype scanner could detect breast cancer in 66 per cent of the cases.

(333 mots)

NewsScientist, Internet, 12/06/03

TRAVAIL A FAIRE

I/COMPTE RENDU EN FRANCAIS (12 points)

Mettez en évidence les informations les plus importantes contenues dans le document (180 mots \pm 20%). Indiquez le nombre de mots utilisés.

II/ TRADUCTION (8 points)

Traduire en français le passage encadré :

de “When the Trimprobe’s, [...]” (ligne 10) jusqu’à “[...]that of healthy tissue. ” (ligne 17)

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NOTE AUX CHEFS DE CENTRE

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ATTENTION

A la place de :

- Durée : 3 heures
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- Durée : **2 heures**
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