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**D E C I S I O N**  
**of 8 October 2003**

**Case Number:** T 0979/02 - 3.4.2  
**Application Number:** 95910197.3  
**Publication Number:** 0745216  
**IPC:** G01N 21/35, A61B 5/00  
**Language of the proceedings:** EN

**Title of invention:**

Method and apparatus for non-invasive detection of  
physiological chemicals, particularly glucose

**Applicant:**

UNIVERSITY OF IOWA RESEARCH FOUNDATION, et al

**Opponent:**

-

**Headword:**

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**Relevant legal provisions:**

RPBA Art. 11(3)  
EPC R. 86(3)

**Keyword:**

"Single request filed by the applicant shortly before the oral  
proceedings, which it did not attend"  
"Evident deficiencies of the application documents"  
"Request not admitted in the proceedings"

**Decisions cited:**

T 0070/98

**Catchword:**

-



Case Number: T 0979/02 - 3.4.2

**D E C I S I O N**  
of the Technical Board of Appeal 3.4.2  
of 8 October 2003

**Appellant:**

UNIVERSITY OF IOWA RESEARCH FOUNDATION  
106 Technology Innovation Center  
Iowa City  
IA 55242 (US)

**Representative:**

Mercer, Christopher Paul  
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**Decision under appeal:**

Decision of the Examining Division of the  
European Patent Office posted 29 April 2002  
refusing European application No. 95910197.3  
pursuant to Article 97(1) EPC.

**Composition of the Board:**

**Chairman:** A. G. Klein  
**Members:** A. G. M. Maaswinkel  
G. E. Weiss

## Summary of Facts and Submissions

- I. The appellant (applicant) lodged an appeal, received on 1 July 2002, against the decision of the examining division, dispatched on 29 April 2002, refusing the European patent application No. 95910197.3. The fee for the appeal was paid on 1 July 2002. The statement setting out the grounds of appeal was received on 9 September 2002.
- II. In its decision, the examining division held that the subject-matter of claim 1 filed at the oral proceedings was not novel having regard to the following document
- (D5) US-A-4 883 953.

This claim 1 had the following wording:

"A method for processing data from a test subject to determine the amount of a physiological chemical in the test subject, the method comprising the steps of:

- (a) irradiating a portion of the test subject with near-infrared radiation such that the radiation is transmitted through or reflected from the test subject;
- (b) collecting spectral data concerning the transmitted or reflected infrared radiation using a detector, the data being in the form of an electronic signal;
- (c) digitally filtering the electronic signal to isolate a portion of the spectral data indicative of the physiological chemical; and
- (d) determining the amount of physiological chemical in the test subject by applying a defined mathematical model to the digitally filtered data".

In the opinion of the examining division, steps (a) - (d) were disclosed in column 8, line 67 to column 9, line 30, where the computation of a differential spectrum disclosed in column 9, lines 20 to 22 constituted a prior disclosure of "digitally filtering" as defined in step (c).

III. With its statement of the grounds of appeal the appellant requested as its main request that a patent be granted on the basis of the claims (including the above claim 1) filed at the oral proceedings before the examining division. The appellant argued that document D5 did not disclose the method step (c) from claim 1 of "digitally filtering the electronic signal to isolate a portion of the spectral data". In particular, the skilled person reading the sections in column 9, lines 20 to 22, and column 9, lines 31 to 36, of this document would not consider these sections to disclose "digital filtering" as commonly understood by a skilled person. To support its position the appellant made reference to a definition of the expression "digital filter" from the textbook "Filter Design for Signal Processing using MATLAB and Mathematica" (Lutovac, Tomic, Evans; Prentice Hall).

In addition to the main request the appellant filed two auxiliary requests, each consisting of a respective claim 1, and filed an auxiliary request for oral proceedings.

IV. In a communication pursuant to Article 11(2) of the Rules of Procedure of the Boards of Appeal (RPBA) dated 25 June 2003 and accompanying a summons to oral

proceedings to be held on 8 October 2003, the board expressed its preliminary opinion, that while it tended to agree with the appellant that the calculation steps carried out in document D5 would not fall under the definition of a "digital filter" as given, for instance, in the cited textbook, it had some reservations about the non-obviousness of such a step in the field of non-invasive spectroscopic measurements before the priority date of the patent application under appeal. In this context it cited the following publication by the present inventors:

(D6) Anal. Chem. 1990, vol. 62, pages 1457 to 1464, M.A. Arnold and G.W. Small: "Determination of Physiological Levels of Glucose in an Aqueous Matrix with Digitally Filtered Fourier Transform Near-Infrared Spectra".

Since document D6 disclosed a method for processing data from a test subject (*infrared quartz cell with 1mm path length, see page 1458, right column "Procedures"*) to determine the amount of a physiological chemical (*glucose*) in the test subject wherein steps (a), (b), (c) and (d) of claim 1 of the main request were carried out, this document would appear to anticipate the subject-matter of this claim (Articles 52(1) and 54 EPC). Therefore this document should be considered as the closest prior art for the claims of the main and auxiliary requests. In the communication the board noted that the further application documents to be considered during the appeal procedure by the board included the pages of the description and the drawings as considered at the oral proceedings before the examining division.

It also pointed out that in case amended claims reflecting the teaching of document D6 were filed, the provisions of Rule 27(1)b and Rule 29 EPC had to be respected. Furthermore it emphasised that any amended documents or requests should be at the disposal of the board at least one month before the date of the oral proceedings and that late filed documents or requests might be admitted into the proceedings only at the discretion of the board under exceptional circumstances.

- V. On 6 October 2003, i.e. two days before the oral proceedings, the appellant informed the board by telephone, and confirmed via facsimile, that it would not attend the oral proceedings.

In the afternoon of the same day the appellant filed an amended set of claims "as a single Main Request" for the appeal board to consider in its absence. The appellant requested "that the Decision of the Examining Division dated 29<sup>th</sup> April 2002 be set aside and the application be remitted to the Examining Division so that a Communication under Rule 51(4) can be issued".

- VI. The wording of claim 1 of this request reads as follows:

"A method for processing data from a test subject to determine the amount of a physiological chemical in the test subject, the method comprising the steps of:

- (a) irradiating a portion of the test subject with near-infrared radiation such that the radiation is transmitted through or reflected from the test subject;
- (b) collecting spectral data concerning the

transmitted or reflected infrared radiation in the form of an interferogram using a detector, the data being in the form of an electronic signal;

(c) digitally filtering the electronic signal to isolate a portion of the interferogram indicative of the physiological chemical; and

(d) determining the amount of physiological chemical in the test subject by applying a defined mathematical model to the portion of the interferogram".

The wording of dependent claim 2 of this request reads:

"A method according to claim 1, wherein the digital filtering is performed by a Fourier filtering process".

The further claims 3 to 6 of this request are equally dependent claims.

VII. The arguments of the appellant may be summarised as follows.

In the new claim 1 the spectral data are collected in the form of an interferogram. It is accepted that document D6 also discloses on page 1458, column 2, paragraph 5, collecting data in the form of an interferogram. However, the interferogram in D6 is Fourier transformed to obtain a single-beam spectrum, which single-beam spectrum itself is analysed to isolate a portion of the single-beam spectrum indicative of the physiological chemical.

In contrast to this teaching in the method according to claim 1 it is the interferogram itself which is digitally filtered. As discussed in the published

application on page 13, lines 18 to 24, the application of this method allows an improved detection and processing method with the use of smaller interferometers with less stringent mechanical tolerances. Hence the subject-matter of claim 1 is novel and inventive.

VIII. Oral proceedings took place on 8 October 2003 in accordance with Rule 71(2) EPC. The board gave its decision at the end of the oral proceedings.

### **Reasons for the Decision**

1. The appeal is admissible.

2. *The request on file*

2.1 In its facsimile letter sent on 6 October 2003 and actually received by the members of the board one day before the oral proceedings, the appellant requested that the enclosed amended set of claims be considered as a "*single Main Request*". Since by definition there can be no more than one "Main Request" (*any further requests being termed "auxiliary" or "subsidiary" requests*), it must be construed from the wording used by the appellant that the submitted Main Request is also its "single", i.e. only remaining, request to be considered. This interpretation is also supported by the subsequent sentence in this facsimile: "*The amended set of claims comprise substantially identical subject matter to Auxiliary Request 1 filed with my written statement setting out the Grounds of Appeal dated*



9<sup>th</sup> September 2002", which confirms that the prior Auxiliary Request is no longer on file.

The closing paragraph of this facsimile letter reads:  
*"I request that the Decision of the Examining Division dated 29<sup>th</sup> April 2002 be set aside and the application be remitted to the Examining Division so that a Communication under Rule 51(4) can be issued"*. This phrase, taken together with the appellant's filing of a single main request can only lead to the conclusion that it is the appellant's single request to have a patent granted on the basis of the set of claims filed with the facsimile of 6 October 2003. Since in its communication of 25 June 2003 the board had explicitly enumerated the further application documents it would consider (*i.e. the description pages and drawings sheets considered in the decision under appeal, no further amended pages having been filed by the appellant during the appeal proceedings*), the application documents to be considered by the board for the appellant's single request consist of:-

- (i) the above set of claims;
- (ii) description pages 1, 3, 6, 9 to 17, 19, 23 to 27 of the published application; and pages 2, 4, 5, 7, 8, 18 to 22 filed with the letter of 10 October 2000;

and

- (iii) drawing sheets 1/10 to 10/10 of the published application.

3. *Admissibility of the request*

3.1 According to Rule 86(3) EPC, "after receipt of the first communication from the Examining Division the applicant may, of his own volition, amend once the description, claims and drawings provided that the amendment is filed at the same time as the reply to the communication. No further amendment may be made without the consent of the Examining Division". By virtue of Article 111(1) and Rule 66(1) EPC, these provisions are also applicable to appeal proceedings *mutatis mutandis*.

3.2 In Decision T 70/98 (*not published in the Official Journal of the EPO*), point 2.1 of the Reasons for the Decision, it is pointed out that in appeal proceedings the admissibility of late-filed requests is always a matter for the board's discretion. Furthermore it is stated that the boards of appeal have often been prepared, in particular in *ex parte* proceedings, to exercise that discretion in favour of appellants filing new requests shortly before or even during oral proceedings. According to the board in that decision, one reason why this practice has been allowed is that the boards have been able to discuss such requests with the appellants at the oral proceedings.

3.3 As in the above Decision (see point 2.2 of the Reasons), by very late filing a new set of claims (which, incidentally, did not comprise "substantially identical subject matter to the previous Auxiliary Request 1" as asserted by the appellant in its facsimile sent on 6 October 2003) and by not attending the oral proceedings, the appellant waived the opportunity of discussing its case and, if necessary, of filing

further amendments to overcome any objections during the oral proceedings. According to new Article 11(3) of the Rules of Procedure of the Boards of Appeal (OJ EPO 2003, 61) "The Board shall not be obliged to delay any step in the proceedings, including its decision, by reason only of the absence at the oral proceedings of any party duly summoned who may then be treated as relying only on its written case". Therefore, since the appellant did not provide any reason as to why its new request had not been filed within the time limit set by the board in its communication, and for reasons of procedural economy, the board does not have any reasonable alternative other than to decide on the admissibility of this request by using the criterion of whether the documents of this request would be prima facie clearly allowable under the EPC.

- 3.4 In order to answer this question the claims on file will be compared with the description. In the Section "Digital Filtering of a Single Beam Spectrum or an Interferogram" starting on page 8, line 27, two processing methods for treating data collected in the form of an interferogram are disclosed:-
- 3.4.1 On page 9, starting on line 6 (until page 10, line 7), a first method is disclosed in which the fringe pattern recorded from the spectrometer is first converted to a single beam spectrum by Fourier transforming of the fringe pattern. This single beam spectrum is now treated to remove all unwanted spectral information by Fourier filtering (see Figure 2 and page 7, line 28, to page 8, line 20) wherein the transformed spectrum is multiplied by a Gaussian function. The resulting filtered spectrum can be subjected to an inverse

Fourier transform to yield the filtered interferogram. This method is illustrated in Example 1 (page 20, line 9) and Example 2 (page 21, line 20) and the raw and filtered interferograms are shown in Figures 7 and 8. In the facsimile letter of 10 October 2003 the appellant has conceded that this method is disclosed in document D6 (*see, for instance, Figure 6 of D6*).

3.4.2 On page 10, line 8, to page 13, line 24, an alternative technique is presented in which the raw data (fringe pattern) is *directly filtered without first Fourier transforming*. According to page 12, line 26, to page 13, line 7, the digital filter used in this method is of the convolution type and does not carry out a Fourier filtering process since and during this filtering no Fourier transform is carried out. An example of this technique is illustrated in Example 5 on page 25, line 13.

3.5 Whereas the wording of former independent claim 1 covered both methods, the present claim 1 on file is restricted to the second method set out in point 3.4.2 above. This has the following consequences:

3.5.1 Considerable parts of the description (in particular the Summary of Invention, starting on page 2, line 31 to page 4, line 11; and the pages and examples referred to in point 3.4.1) no longer disclose "aspects" or "embodiments" of the invention as claimed and should have been adapted or deleted (Article 84 and Rule 27(1)(c) EPC).

3.5.2 Since claim 2 defines that the digital filtering is performed by a "Fourier filtering process" which does

not apply in the method defined in claim 1 to which claim 2 is appended, these claims are contradictory (Article 84 EPC).

4. Therefore both the description and the claims taken alone *prima facie* reveal a number of formal deficiencies. It is highly regrettable that the appellant, firstly by filing its request so late and secondly by not attending the oral proceedings which it had requested itself, waived the possibility of meeting the objections in a dialogue for which the board had been prepared. Because of these deficiencies the board has decided not to admit the late filed request of the appellant in the proceedings under Rule 86(3) EPC.
  
5. Since there are no further requests the appeal must be dismissed.

## **Order**

**For these reasons it is decided that:**

The appeal is dismissed.

The Registrar:

The Chairman:

P. Martorana

A. Klein