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In the news

Trends in Analytical Chemistry sets a new record for citations

Trends in Analytical Chemistry (TrAC) set a new record for its number of citations in one year, which rose to 9058 in 2014 compared with its previous record number of 8346 (set in 2013) – an improvement of 8.5%, according to the latest independent data from ***The Journal Citation Reports* 2014**, published by Thomson Reuters.

TrAC's Impact Factor of 6.47 means that the journal retained its Number 2 ranking in the list of 74 analytical chemistry journals (Table 1, Fig. 1).

Overall, ***TrAC*** was also ranked at Number 2 in the analytical-chemistry sector for Five-year Impact Factor (6.93) and Article Influence.

JCR Impact Factor is a measure of the frequency with which the average article in a journal has been cited in a particular year. For example, the 2014 Impact Factor was the number of citations received in 2014 by all articles published in 2013 and 2012, divided by the number of source items (i.e. review articles in the case of ***TrAC***) published in 2013 and 2012.

Table 1
JCR Impact Factor (IF) of Top 10 analytical chemistry journals

Journal	IF 2014	IF 2013
1. *Annu. Rev. Anal. Chem.*	8.83	7.81
2. *Trends Anal. Chem.*	**6.47**	**6.61**
3. *Biosens. Bioelectron.*	6.41	6.45
4. *Anal. Chem.*	5.64	5.83
5. *Anal. Chim. Acta*	4.51	4.52
6. *J. Chromatogr., A*	4.17	4.26
7. *Analyst (Cambridge, UK)*	4.11	3.91
8. *Sens. Actuators B – Chem.*	4.10	3.84
9. *Microchim. Acta*	3.74	3.72
10. *J. Applied Pyrol.*	3.56	3.07

The 5-Year Impact Factor is similar in nature to the JCR Impact Factor, but citations were counted in 2014 to articles in the previous five years (2009–13) and again divided by the source items published in those previous five years.

At Number 1 in analytical-chemistry sector in 2014 was *Annual Review of Analytical Chemistry*, although this "journal" is published only once each year (24 articles).

Laser sensor for diabetics avoids pain

A new laser sensor that monitors blood-glucose levels without penetrating the skin could transform the lives of millions of people living with diabetes.

Currently, many people with diabetes need to measure their blood-glucose levels by pricking their fingers, squeezing drops of blood onto test strips, and processing the results with portable glucometers. The process can be uncomfortable, messy and often has to be repeated several times every day.

Year	Impact Factor
1992	1.616
1993	1.654
1994	2.188
1995	1.583
1996	2.563
1997	2.373
1998	2.127
1999	2.507
2000	2.908
2001	4.26
2002	4.28
2003	3.54
2004	3.89
2005	4.09
2006	5.07
2007	5.83
2008	5.49
2009	6.546
2010	6.602
2011	6.273
2012	6.351
2013	6.612
2014	6.472

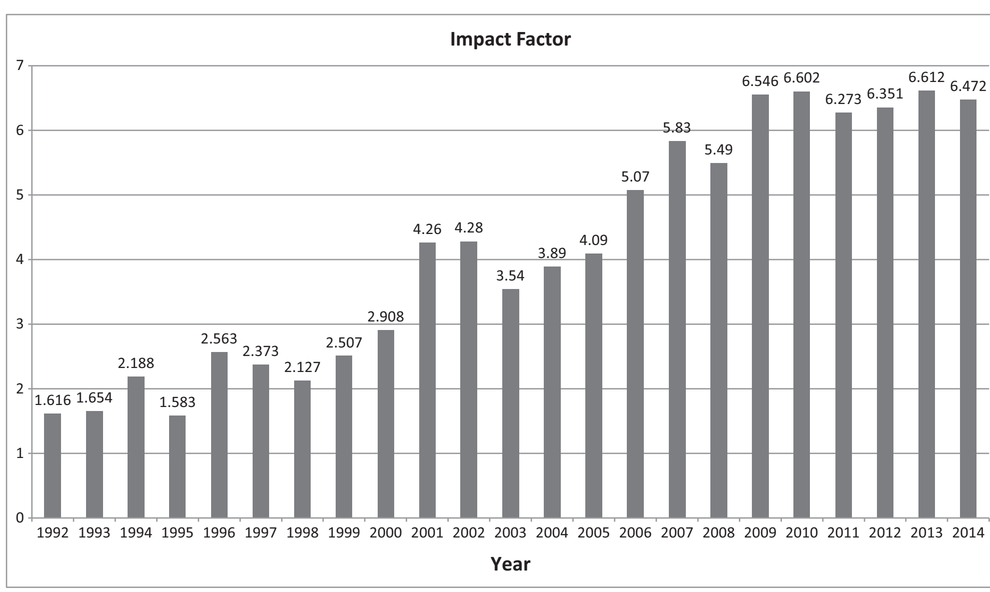

Fig. 1. JCR Impact Factor for ***Trends in Analytical Chemistry*** 1992–2014.

http://dx.doi.org/10.1016/j.trac.2015.07.002

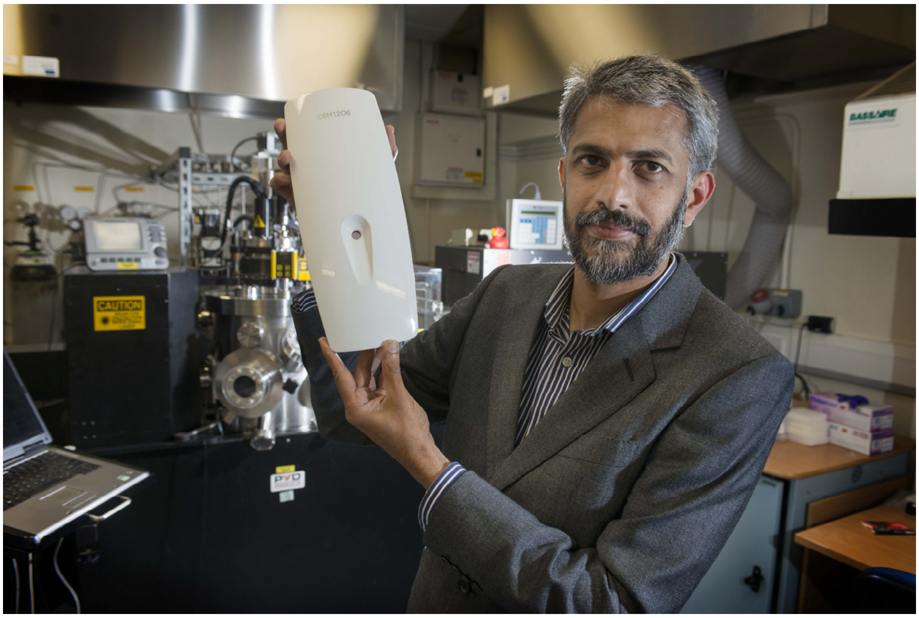

Fig. 2. Professor Gin Jose with the Glucosense monitor.

The new technology, developed by Professor Gin Jose (Fig. 2) and a team at the University of Leeds, uses a small device with low-powered lasers to measure blood-glucose levels without penetrating the skin. It could give people a simpler, pain-free alternative to finger pricking.

"Non-invasive monitoring will be particularly valuable in young people with Type 1 diabetes," said Professor Grant, Professor of Medicine at the University of Leeds and Consultant diabetes specialist. "Within this group, those who are attempting very tight control, such as young women going through pregnancy or people who are experiencing recurrent hypoglycemia, could find this technology very useful".

Nano-engineered silica glass

At the heart of the new technology is a piece of nano-engineered silica glass with ions that fluoresce in infrared light when a low power laser light hits them. When the glass is in contact with the user's skin, the extent of fluorescence signal varies in relation to the concentration of glucose in the person's blood. The device measures the length of time the fluorescence lasts for and uses that to calculate the glucose level in the bloodstream without the need for a needle. This process takes less than 30 s.

The technology has continuous monitoring capabilities, making it ideal for development as a wearable device. This could help improve the lives of millions of people by enabling them to monitor their glucose levels constantly without the need for an implant.

It is also good news for healthcare providers, as it could provide a simpler, cheaper alternative to both of the current methods – finger pricking, which uses disposable sample strips, or invasive continuous monitors, which use implanted sensors that need regular replacement.

"Unlike the traditional method, this new non-invasive technology can constantly monitor blood-glucose levels," said Prof. Jose.

"As well as being a replacement for finger-prick testing, this technology opens up the potential for people with diabetes to receive continuous readings, meaning they are instantly alerted when intervention is needed. This will allow people to self-regulate and minimize emergency hospital treatment. This wearable device would then be just one step from a product which sends alerts to smart phones or readings directly to doctors, allowing them to profile how a person is managing their diabetes over time".

The technology is licensed to Glucosense Diagnostics, a spin-out company jointly formed and funded by the University of Leeds and NetScientific plc.

"Diabetes is a growing problem, with the need for non-invasive glucose monitoring becoming ever more critical," said Sir Richard Sykes, Chairman of NetScientific. "This unique technology could help empower millions of people to better manage their diabetes and minimize interventions with healthcare providers. The ultimate development of two distinct products – a finger-touch and a wearable – could give people with different types of diabetes the option of a device that best suits their lifestyle".

The results of a pilot clinical study, carried out at the Leeds Institute of Cardiovascular and Metabolic Medicine under the supervision of Professor Peter Grant, suggest that the new monitor has the potential to perform as well as conventional technologies. More clinical

TrAC's Top 10 cited articles published since 2010*

1. **Liquid-phase microextraction**
   by A, Sarafraz-Yazdi and A. Amiri
   Trends Anal. Chem. 29 (2010) 1.
2. **Analytical and bioanalytical applications of carbon dots**
   by J.C.G. Esteves Da Silva and H.M.R. Gonçalves
   Trends Anal. Chem. 30 (2011) 1327.
3. **Dispersive liquid-liquid microextraction for determination of organic analytes**
   by A.V. Herrera, M. Asensio-Ramos, J. Hernández-Borges and M.T. Rodríguez-Delgado
   Trends Anal. Chem. 29 (2010) 728.
4. **Electrochemical sensing based on carbon nanotubes**
   by P. Yáñez-Sedeño, J.M. Pingarrón, J. Riu and F.X. Rius
   Trends Anal. Chem. 29 (2010) 939.
5. **Challenging applications offered by direct analysis in real time (DART) in food-quality and safety analysis**
   by J. Hajšlová, T. Čajka and L. Václavík
   Trends Anal. Chem. 29 (2010) 718.
6. **Liquid-phase microextraction techniques within the framework of green chemistry**
   by F. Pena-Pereira, I. Lavilla and C. Bendicho
   Trends Anal. Chem. 29 (2010) 617.
7. **Dispersive liquid-liquid microextraction**
   by A. Zgoła-Grześkowiak and T. Grześkowiak
   Trends Anal. Chem. 30 (2011) 1382.
8. **Coupling ultra-high-pressure liquid chromatography with mass spectrometry**
   by D. Guillarme, J. Schappler, S. Rudaz and J.-L. Veuthey
   Trends Anal. Chem. 29 (2010) 15.
9. **Molecularly-imprinted polymers: Useful sorbents for selective extractions**
   by A. Beltran, F. Borrull, R.M. Marciá and P.A.G. Cormack
   Trends Anal. Chem. 29 (2010) 1363.
10. **Carbon nanostructures for separation, preconcentration and speciation of metal ions**
    by K. Pyrzyńska
    Trends Anal. Chem. 29 (2010) 718.

*Extracted from ***SciVerse Scopus***, 20 July 2015