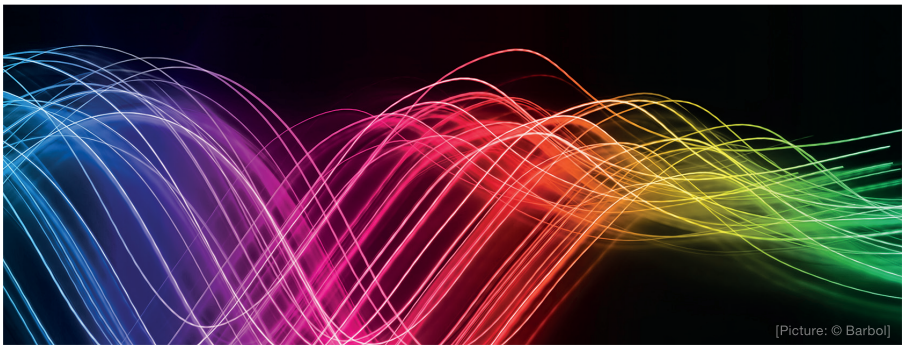

[Picture: © Barbol]

Laser vibrometry initiates

Breakthrough in scaler research

By recording a scaler operating under the microscope at 10,000 times the speed of regular filming, they found tiny water bubbles forming at the end of the scaler, a process known as cavitation. According to them, the area of cavitation near the free end of the tips increased with greater power and with the amplitudes of displacement at the tips.
The formation and collapse of water bubbles create significant forces that could disrupt biofilm without touching the tooth's surface, paving the way for new instrument designs that are less invasive, the researchers said in the paper. For the study, a Satelec P5 Newtron Scaler with Satelec tips 10P, 1 and 2 operating at medium and high speeds was recorded at up to 250,000 frames per second in a water tank. The tip displacement was then recorded using scanning laser vibrometry. It is the first time that both methods have been applied to study cavitation around ultrasonic scalers. The study, titled "High speed imaging of cavitation around dental ultrasonic scaler tips", was published online on March 2 in the *PLOS One* journal.

Steady growth in the

Dental laser market

In addition to oral surgery, dental lasers are used for a variety of applications. Owing to the increasing demand in this sector, among other influences, the worldwide market for the devices will grow by a compound annual growth rate of 5.2 per cent over the next five years and is expected to exceed US$ 200 million (£ 144 million) by 2020, a new report has predicted.
According to the report, this growth will primarily be driven by the Asia Pacific market as clinicians and patients in this region are increasingly becoming aware of the benefits of laser devices. Other developments contributing to the growth of laser use include the rise in the number of aesthetic procedures on the continent and the ageing population.
The report, which was conducted by market research provider Marketsandmarkets and published by ReportBuyer in Charing, Kent, last week, analysed industry trends and the market shares of top players in the field. It also provides insights into the markets for dental lasers across various regions, exploring new distribution channels, new client bases and different pricing policies.

Source: www.dental-tribune.com

[Picture: ©everything possible]

Laser technology explores

Nanostructures with living cells

Using Laser Technology, Aleksandr Ovsianikov from the Vienna University of Technology wants to create microstructures with embedded living cells. The behaviour of cells strongly depends on their environment. If they are to be researched and manipulated, it is crucial to embed them in suitable surroundings. Aleksandr Ovsianikov is developing a laser system, which allows living cells to be incorporated into intricate taylor-made structures, similar to biological tissue, in which cells are surrounded by the extracellular matrix. This technology is particularly important for artificially growing biotissue, for finding new drugs or for stem cell research. Ovsianikov has now been awarded the ERC Starting Grant from the European Research Council (ERC) of approximately 1.5 million Euros.
Interdisciplinary cooperation is crucial for this project, which connects engineering, material science, biology and chemistry. Born in Lithuania, Ovsianikov obtained his PhD in Hannover, Germany. Now he has been working at the Vienna University of Technology for two years.

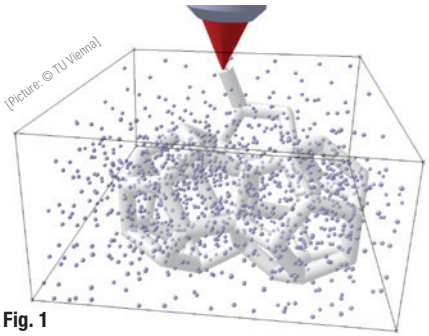

[Picture: © TU Vienna]

Fig. 1

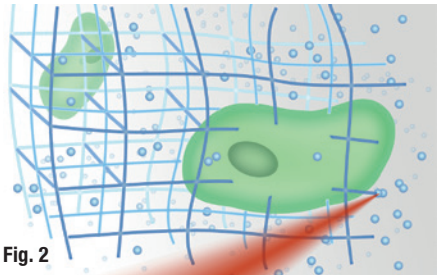


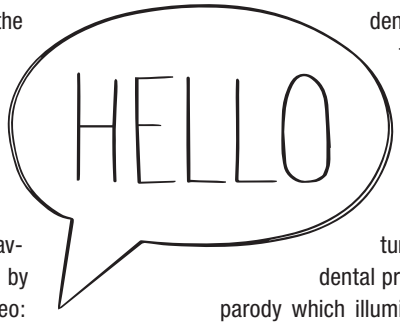
Fig. 2

Fig. 1: A laser hardens the liquid material exactly at the focal point. – **Fig. 2:** A three-dimensional grid can be produced, which keeps the cell in place.

Source: www.tuwien.ac.at

Hello from

The Dentist's side



Hardly ever is a visit at the dentist's seen as a fun event. While many are aware of the patient's side, only few take into account the dentist's view. A dental clinic from Houston, Texas, now endeavours to overcome this bias by a very special music video: they have adapted Adele's super hit "Hello" in favour of dentists worldwide. Friendly reminders remaining unheard, missed check-up appointments and the omnipresent danger of being bitten—as most people are usually seated on rather than in front of the dental chair, taking the dentist's perspective is difficult. The dental clinics New Teeth Dental Side has now turned the tables by recording a new version of Adele's "Hello", which features all aspects of the daily dental practise. The result is a funny parody which illuminates the special relationship between dentist and patient.

The following video recently went viral as it illustrates how dental fear impacts both patient and dentist:

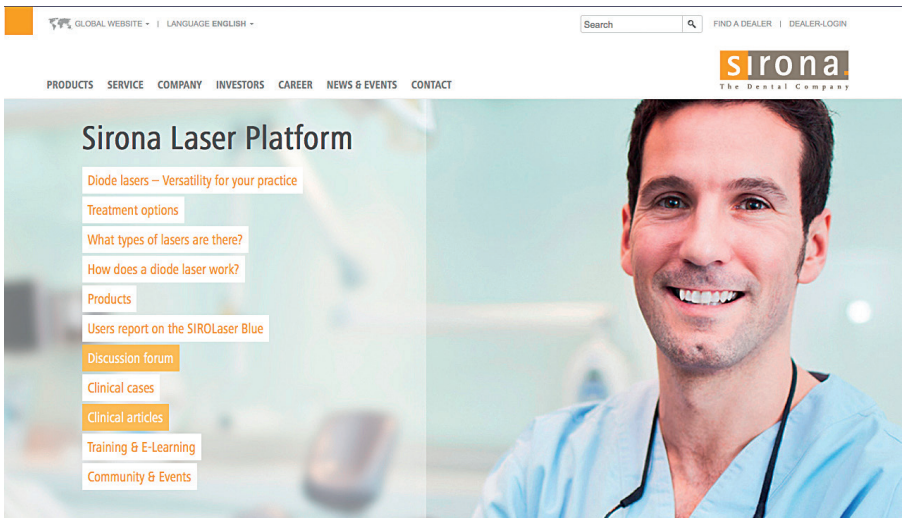
[Picture: © Kostenko Maxim]

Dentsply Sirona introduces

Online knowledge-sharing platform

The development of blue laser technology has vastly increased the possible applications of diode lasers in dentistry and, at the same time, created greater awareness of laser dentistry. The international "Sirona Laser Platform" from Dentsply Sirona, which was introduced at the beginning of March, is meant to acquaint dentists with the different areas of laser dentistry in a lively way. Dentists who wish to take advantage of this opportunity can receive free access to the knowledge-sharing platform of the global market and technology leader in the dental industry via the link www.sirona.com/en/sirolaser.

The information available on the platform is very diverse and encompasses the various types of lasers in the market, the differences between diode and traditional lasers and how they work. Additionally, a corresponding forum is included in this platform as well. This gives participants a place to exchange knowledge and information on all things related to laser dentistry with other colleagues.



Big Data tool to

Test new medicines

Australian scientists have developed a tool to map the effects of new medicines already on the market, potentially saving millions of health practitioners from prescribing medicines with lesser-known yet serious side effects. Lead researcher Dr Nicole Pratt, a senior research fellow at the University of South Australia's School of Pharmacy and Medical Sciences, has been working with the Asian Pharmacoepidemiology Network (AsPEN) to develop a mathematical algorithm that charts the temporal relationship between a new medicine and reports of adverse side effects around the globe. The rapid detection tool is able to quickly analyse large population datasets of up to 200 million people, containing information about the time a patient is prescribed a new medicine (captured at the point of purchase) and recorded hospitalisation events. "We look at the link between starting a new medicine and a hospitalisation event and determine whether there is an association between those two events", said Pratt. At the time a new medicine is first released onto the market less than 50 per cent of the side effects are known.

Source:
www.theleadsouthaustralia.com.au

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