AR NEWS

45th issue, April 2022, Allresist GmbH

Content:

Welcome to the 45th issue of AR NEWS; unfortunately still strongly influenced by the effects of the coronavirus pandemic. We still hope for the better and would like to keep you informed about the further development of our company and its research projects.

1. Ukraine at war: We also bear responsibility

Like certainly so many others could we not imagine having to worry about the future of our children and grandchildren. But the brutal war so close to us, unleashed by an inhuman autocrat, is fundamentally shaking our understanding of European civilization. Putin's claim that Ukrainians are just fettering and shooting compatriots in order to distribute "fake news" about him, is incomprehensible. Let's hope that the world community will succeed together in ending this barbaric war very soon.

Allresist supports Ukraine's heroic struggle with monetary donations and material resources. Our employees have collected clothing, thermos flasks, as well as bathroom and hygiene items. Six packages of over 100 kg were sent to the Ukrainian border. We also donated generously and delivered 450 litres of self-produced disinfectants.

Even though we personally feel sorry for our Russian trade partners, all our deliveries to Russia were stopped after the war began. This may certainly seem a small contribution, but we wanted to set a sign of disapproval. If many others participate, Putin may eventually realize that he can't eat his roubles.

2. COVID-19: An endless story?

With discipline and sense of responsibility, we so far managed to get through the pandemic without disrupting business operations.

Political decisions and the significant influence of scientifically unfounded opinions leave an impression of certain disorientation in the society with regard to the pandemic. Let's hope that from now on a largely free life maybe possible. If the admonishers are however right, we might face another infection wave at the end of 2022, and this with only too well-known restrictions.

We nevertheless achieved in 2021 the highest sales volume in the past 30 years and would like to take this opportunity to thank all our customers. We will continue to be your reliable partner in the future.

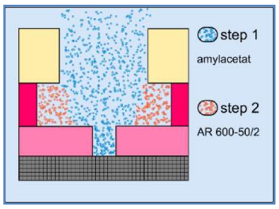
3. Allresist again present at congresses

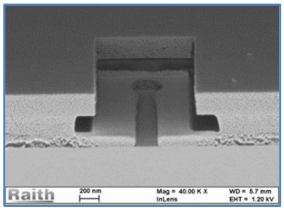
Both the EIPBN conference 2020 (New Orleans) and 2021 (San Diego) only took place as virtual events, but now we are finally looking forward to the in-presence meeting in New Orleans this year. Flight tickets, hotel and exhibition stand are already booked.

The focus of the EIPBN is traditionally on electron beam lithography. Taking account of this, we will show new results of our EOS 72 (a sensitive, chemically amplified positive e-beam resist) on a poster.

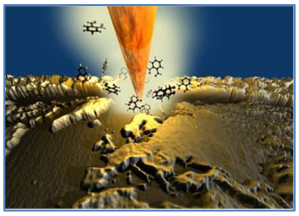
In addition to discussions at our stand, we also participate in the Industrial Highlights Session where we present further interesting e-beam applications.

1. Fabrication of T-gates using a three-layer system (CSAR, Copo, PMMA)

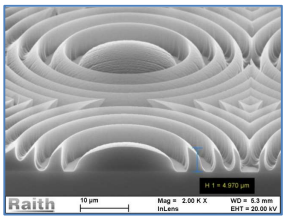


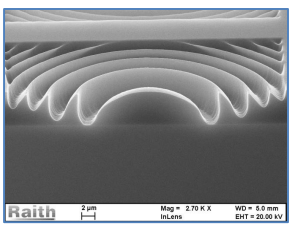


2. Phoenix for the NanoFrazor (thermally developable structures)

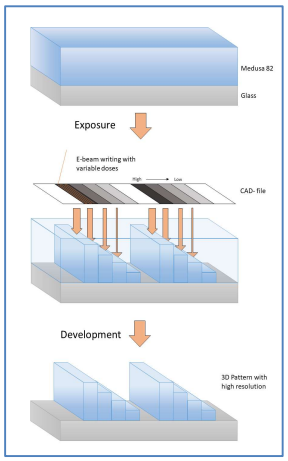


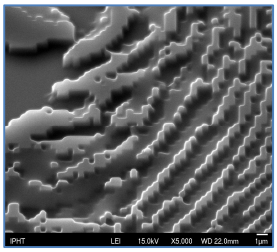

3. Thick diffractive optics (PMMA)



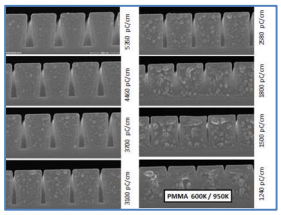


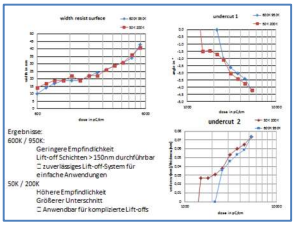
4. Grey-tone lithography with Medusa





5. Double layer lift-off (PMMA)



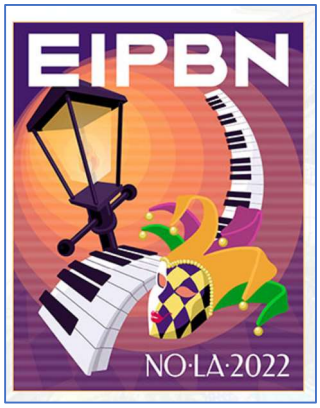


6. Green PMMA developer

(see below, item 4)

Should a topic already now be of interest to readers of AR NEWS, we would be pleased to provide further information.

Well, New Orleans is not exactly around the corner, but we would be very happy about every visit to our stand.



Electron, Ion and Photon Beam Technology and Nanofabrication. The Sheraton New Orleans, Louisiana
31.05.2022 – 03.06.2022

The second conference this year is the MNE 2022 in Leuven in mid-September where we also booked a stand already. Due to the

cancellation of face-to-face events in the last two years, for the first time Dr. Mandy Grube and Harry Biller will be there in addition to our on-site team. We look forward to stimulating discussions with you!

ShowsBee

Micro & Nano Engineering (MNE) 2022

Gasthuisberg, Leuven, Belgium, 19.09.2022 – 23.09.2022

4. Eco–friendly "green" PMMA developer

Now we would like to introduce you to a new PMMA developer whose potential possibilities may also inspire many users. This developer is a mixture of isopropanol and water – which may sound surprising at first, since both components individually hardly attack PMMA layers. There is however an optimum mixing ratio at which the required radiation dose for PMMA corresponds approximately to the dose of the conventional developers AR 600-55 and AR 600-56 (MIBK/IPA). Due to the gentle development (no swelling), usually also a larger process window is achieved.

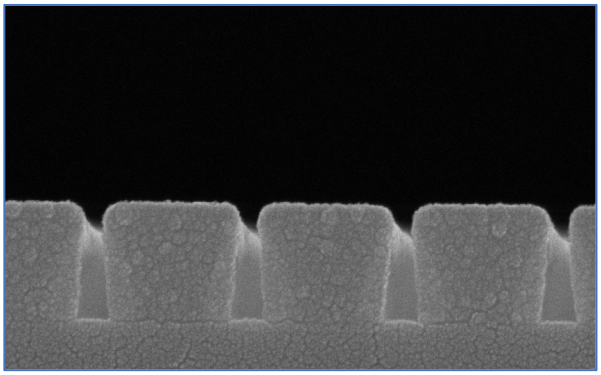


Fig. 1 PMMA double-layer system, developed with AR 600-57

These investigations also take into account the fact that MIBK will be classified as a "hazardous substance" from the end of 2022. With the new formulation, we will be offering a non-hazardous AR 600-57 developer in the future, which is in addition (due to the components, water and isopropanol) significantly more ecological to dispose of.

5. Profit project of the State of Brandenburg QD–LED

The project entitled "New structuring methods for printing of QD-LEDs for signage application" is a collaboration between Fraunhofer IAP (Golm), Lodz University of Technology, Qwerty (Lodz, Poland), and Allresist.

Focus of the collaboration project is to develop the processing of quantum dot-based light-emitting diodes (QLEDs) layers with easy-to-manufacture charge carrier and emission layers using inkjet printing and resist technologies. The aim is to reduce production costs and at the same time contributing to the further development of highly efficient QLEDs. Interested parties are welcome to register in advance.

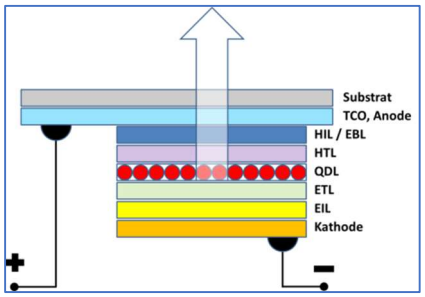


Fig. 2 Structure of a QLED element

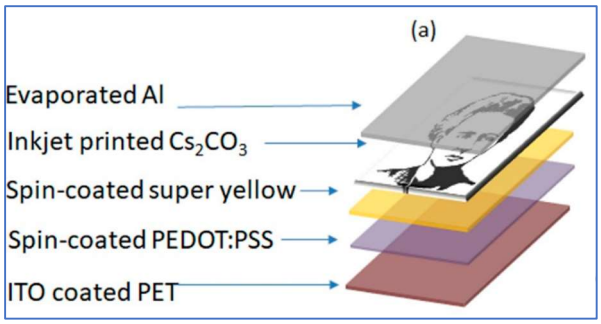


Fig. 3 Schematic diagram of QLEDs, whereby the emission layer consists of a Cs_2O_3 layer, the simulated picture of Marie Skłodowska Curie as well as the resulting QLED

6. Allresist has planted trees

As already announced in the last issue of the AR NEWS, we now present pictures of our tree planting campaign.

We have planted hundreds of seedlings in the forest near Gottsgabe in the district of Märkisch-Oderland and protected them from game damage with small grids. The day was definitely physically demanding for all of us, but left a very satisfying feeling in everyone involved, and we decided to repeat the tree planting event from now on every year. The forester coordinating and supervising our tree planting in the beautiful village of Gottesgabe will thus receive another donation of 2,000 € for seedlings this year.

Fig. 4 + 5 Team of Allresist in the forest near Gottesgabe

We hope that you found some interesting news or suggestions and look forward to your comments. The next issue of our AR NEWS will again be presented in October 2022.

Until then, we wish you and us every success. Stay healthy! 😊

Strausberg, 21.04.2022
Matthias & Brigitte Schirmer in the Team of Allresist