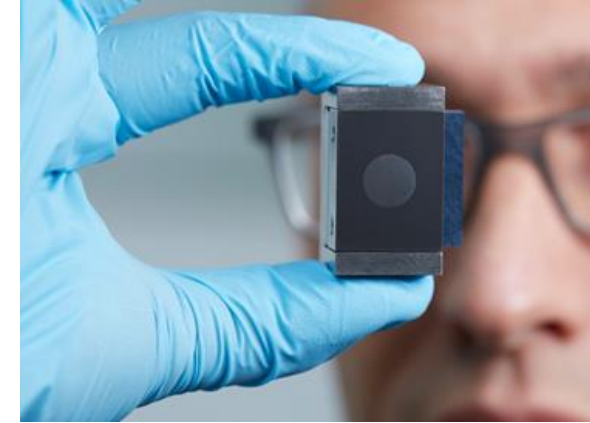


# ACN2020 - Applications of Crystals and Nanotubes for Acceleration & Manipulation



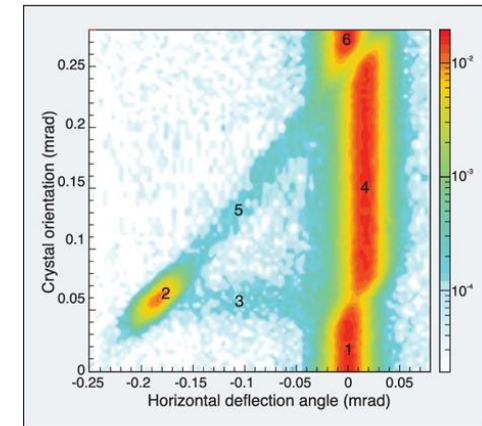
ARIES WP6 Workshop

<https://indico.cern.ch/event/867535>

EPFL, Lausanne, 10-11 March 2020

Tatiana Pieloni, Marco Zanetti,

Frank Zimmermann



EPFL





**“Accelerator Research and Innovation for European Science and Society”** (ARIES) is an Integrating Activity project which aims to develop European particle accelerator infrastructures, co-funded under the European Commission's Horizon 2020 Research and Innovation programme, coordinated by M. Vretenar (CERN)



**ARIES WP6 “Accelerator Performance and Concepts” (APEC)**, coordinated by G. Franchetti (GSI) and F. Zimmermann (CERN) covers Beam Quality Control in Hadron Storage Rings and Synchrotrons, Reliability and Availability of Particle Accelerators, Improved Beam Stabilization, Beam Quality Control in Linacs and Energy Recovery Linacs, and

**Task 6.6 “Far Future Concepts & Feasibility”**, coordinated by Marco Zanetti (INFN & U. Padova), Frank Zimmermann (CERN)

# ARIES APEC Task 6.6 – scope (defined in 2015/16)

- ❖ analysis of the **potential of crystals for charged-particle bending or particle acceleration**

- **Applications of Crystals and Nanotubes Workshop**, Lausanne, 10-11 Mar 2020

- <https://indico.cern.ch/event/867535/>

- ✓ development of **advanced photon colliders**, including gamma-gamma and photon-nucleon colliders

- **Photon Beams workshop**, Padova, 27-28 Nov. 2017, <https://indico.cern.ch/event/668097>

- ✓ assessment of **advanced muon-collider concepts without ionization cooling**

- **Muon Collider workshop**, Padova, 2-3 July 2018, <https://indico.cern.ch/event/719240/>

- assessment of the potential **use of large storage rings for gravitational wave detection or generation**

- assessing and **ranking a basket of future concepts with regard to “future feasibility”** and physics cases; delivering a **white list of ranked future options**



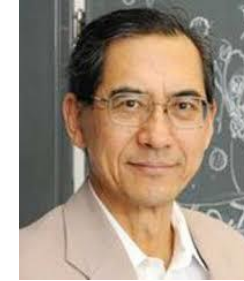
# *... a highly dynamic field ...*

**Channeling International Conference Series**  
(S. Dabagov), e.g.



Workshop on Beam Acceleration in Crystals and Nanostructures, FNAL, 24-25 June 2019 (S. Chattopadhyay, G. Mourou, V. Shiltsev, T. Tajima,...)

<https://indico.fnal.gov/event/19478/>



Channeling 2014, Capri,  
5-10 October 2014

<http://www.lnf.infn.it/conference/channeling2014/>

Channeling 2016, Sirmione,  
25-30 September 2016

<http://www.lnf.infn.it/conference/channeling2016/>

Channeling 2018, Ischia,  
23-28 September 2019

<http://www.lnf.infn.it/conference/channeling2018/>

Channeling 2020, Riccione,  
20-25 September 2020

<http://www.lnf.infn.it/conference/channeling2020/>

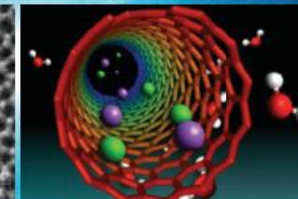
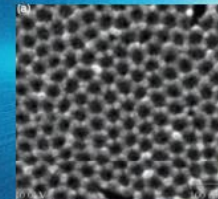


## BEAM ACCELERATION IN CRYSTALS AND NANOSTRUCTURES

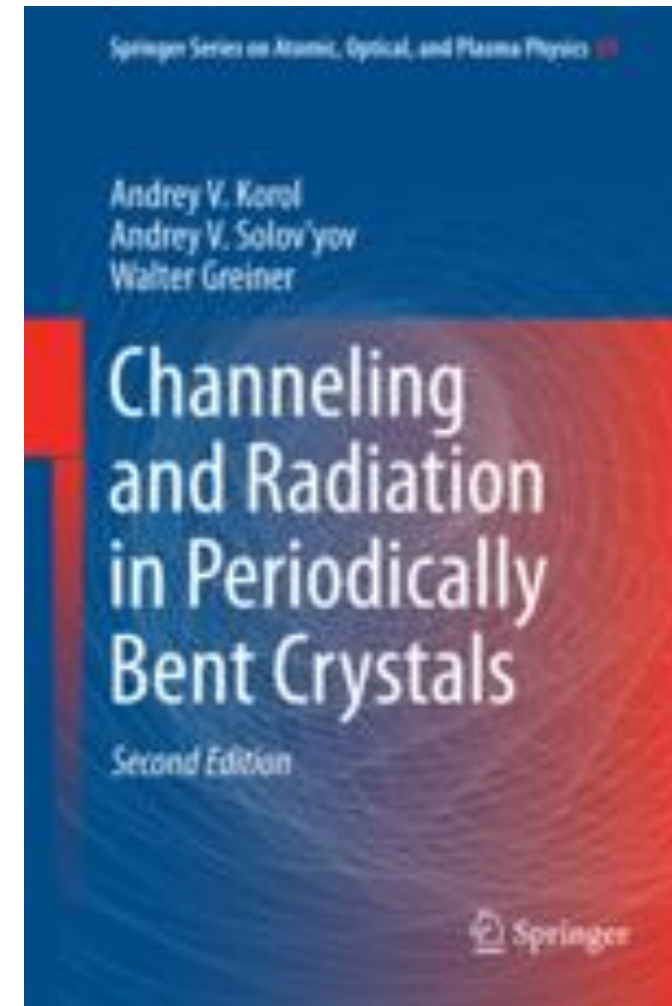
Edited by

Swapan Chattopadhyay • Gérard Mourou  
Vladimir D. Shiltsev • Toshiki Tajima

BEAM ACCELERATION IN  
CRYSTALS AND NANOSTRUCTURES



World Scientific



etc.

***... but many obstacles yet to overcome ... !***

CERN Duty travel. Updated 6 March 2020

*“All duty travel on behalf of CERN is suspended as of Wednesday 11 March 2020 until further notice.”*

WORLD | EUROPE

## **As Virus Spreads, Italy Locks Down Country**

Only essential travel to, from and within all of country is allowed; virtually all public gatherings are banned

*By Eric Sylvers and Giovanni Legorano*

Updated March 9, 2020 6:42 pm ET

MILAN—Italy placed its entire national territory under quarantine, only two days after

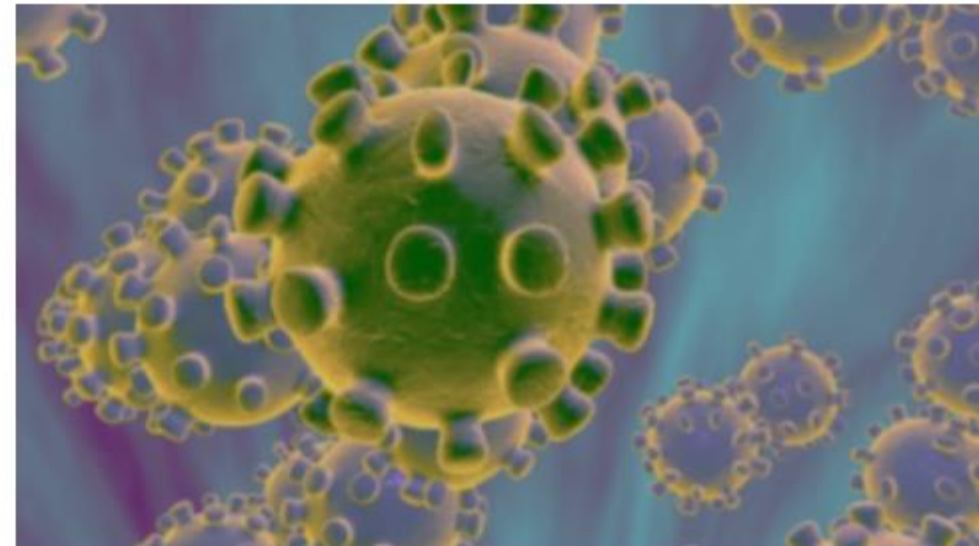
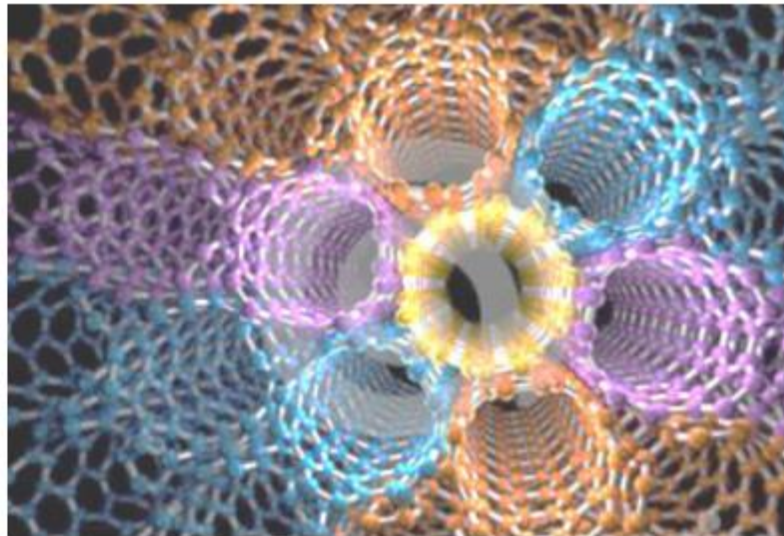
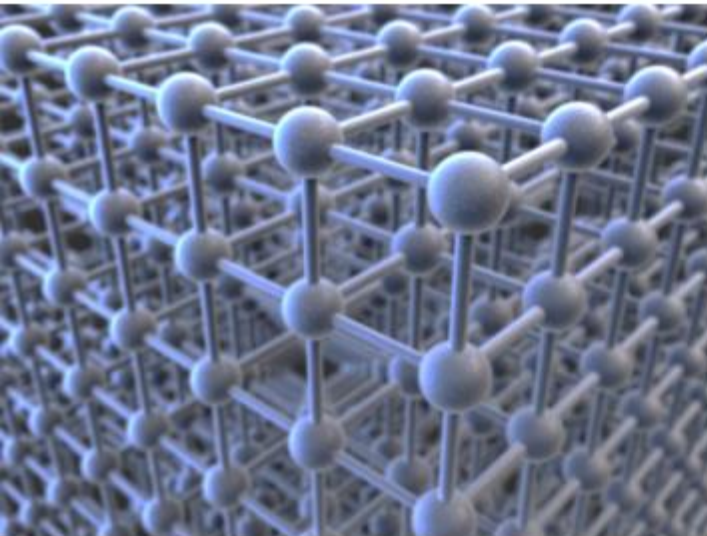
# should we change the workshop name ?

**ACN2020 → ACNC2020**

**Crystals,**

**Nanotubes,**

**and Coronavirus**





*thank you for participating!*