



ACADEMY OF SCIENCES OF ALBANIA

W O R K S H O P

“NANOALB & CONSTRUCTION INDUSTRY”

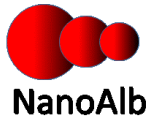
Nanotech cooperation opportunities with Zoz GmbH Germany

Organized by

**NANOALB-ALBANIAN UNIT OF NANOSCIENCE AND NANOTECHNOLOGY
ACADEMY OF SCIENCES OF ALBANIA**

August 2nd 2021 Tirana, Albania

Venue: Academy of Sciences of Albania, Sheshi "Fan Noli", No 7, Tirana, Albania



WORKSHOP



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Introduction

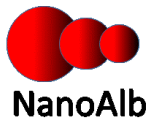
Development of a country depends in part from the quality of infrastructure. Establishment of quality infrastructure and other constructions in the form of dams, highways, railways /metros, power plants as well as industries and housing is critical to developing countries. This is quite important for the country as well as for the agencies involved in execution of these projects and are looking to complete at faster pace including viability and returns. This requires, between others, the substitution of the construction materials like cement and steel with high performance and energy efficient materials.

Recent advancements in nanotechnologies have been magical and are responsible for innovative synthesis of new engineering materials. The new materials and composites developed have been convincingly deployed in challenging engineering and scientific applications to resolve visibly impossible assignments.

Zoz GmbH, Germany, is an innovative company in Europe leading in processes associated with mechanical alloying, high energy milling and reactive milling.

Prof. Henning Zoz, inventor of the Simoloyer Technology and Director, Zoz GmbH, is the main guest of this meeting and will speak on advanced processing of nanostructured materials, with particular emphasis on production of high-performance cement having fast curing time and strength.

This meeting will be especially appealing for advanced research and expertise within NanoAlb as well as for local companies that have interest in the use of new advanced nanomaterials and technologies related to the field of construction (cement, concrete, etc.), based on nanomaterials and nanotechnology. We are looking to establish fruitful collaborations between the various research groups of NanoAlb and industries based on the presentations of expertise, expression of the proper needs /problems and interest. The workshop will establish future collaborations with mutual interest academy-industry for a better driving of the R&D capabilities toward society needs.



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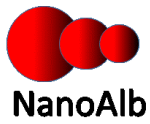
Program

- | | |
|---------------|---|
| 09.30 – 10.00 | Registration |
| 10.00 – 10.15 | Welcome speech
Academy of Science of Albania representative
Albanian Government representative |
| 10.15 – 10.30 | NanoAlb and objectives of the workshop

Acad. Prof. Dr. Arben Merkoçi
Director & Coordinator of NanoAlb, Academy of Science of Albania
ICREA Professor, Catalan Institute of Nanoscience and Nanotechnology,
Barcelona, Spain. |
| 10.30 – 11.15 | “High Performance and Future Cement”

Prof. Dr. (IPN) Henning Zoz
President & CEO
Zoz Group, Germany |
| 11.15 – 11.45 | Discussion |
| 11.45 – 12.00 | Coffee break |
| 12.00 – 12.10 | "Cement-free binders/Nanostructured Ultra High Performance Concrete"

Prof. Dr. Arjan Korpa
<i>NanoAlb Research Group</i>
Department of Chemistry, Faculty of Natural Sciences, University of
Tirana. |



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12.10 – 12.20 "Seagrass as natural waste value added building material and solid state micro and nano-products for renewable energy and sensorial applications"

Prof. Dr. Kledi Xhaxhiu

NanoAlb Research Group

Department of Chemistry, Faculty of Natural Sciences, University of Tirana

12.20 – 12.40 Discussion

12.40 – 13.00 **Conclusions and Closure of Meeting**



FuturZement C.1 | FuturBeton C.1

nanostructured cement/concrete

high strength ☀ CO2-low ☀ super durability

all advantages for EUR 7,00 / ton of concrete

(additional full cost, CM900, Germany 2012-10)



Industry:

construction-industry

with FuturBeton can build more faster | sleeker | higher | cost-effective | durable | environmentally friendly with | better surface and | less steel the today's semi-waste GGBS turns into a super-activated high value product (30% additive to OPC > FuturZement)

steel-industry

Product/innovation 100% ready to market proved:

- technologically** → public bridge in Germany !
- economically** → +7,00 EUR/ton as of 43.000 tons p. a. (1x Simoloyer® CM900)
- ecologically** → 20 % CO2-emission savings in cement manufacturing process

Technical advantages:

- strength** 100-120 MPa after 28 days
- early strength** 40 MPa on the first day
- durability & surface** super fine pores, to date full performance after 1 year under water
- application** except Simoloyer® plant, common cement/concrete processing route

Cost advantages:

- higher strength** → less material, replace steel
- higher early strength** → build faster
- higher durability** → less material, build less often
- better surface** → can represent cost-advantages as well
- CO2 savings** → can represent cash earnings/savings as well

Schedule & volumes	option (a)	option (b)	option (c)
equipment scale Simoloyer®:	CM100	CM400	CM900
estimated annual production and CO2-saving capability [t]			
GGBS	240	960	2.160
good for FuturZement/cement	800	3.200	7.200
good for FuturBeton/concrete	4.800	19.200	43.200
results in an annual CO2-emission saving	95	380	855
cost approximates and schedule			
additional product cost per ton of concrete, based on German full-cost calculation, 10-2012	€ 22,00	€ 10,00	€ 7,00
time-scale, set-up/start of the new production/product line	10 months	16 months	20 months
total cost at partner Zoz [Mio€]	1,0	2,1	3,2
total cost at partner a, b.. [Mio€]	tbc	tbc	tbc



the bridge "Rosenthal" at Olpe/Germany established on November 14, 2012



12 ton roof balustrade, Villa ZCS at Siegen/Germany established on June 21, 2013