

ZnC

znanost na cesti
science on the street

Znanost na cesti

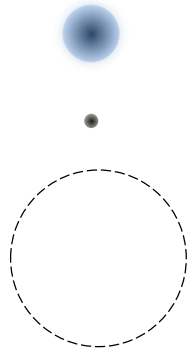
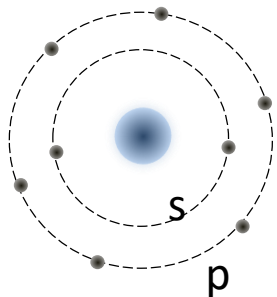
in ZRC SAZU



O izzivih in ugankah magnetno privlačnih tekočin

prof. dr. Darja Lisjak
(Institut „Jožef Stefan“) in
Petra Prešeren

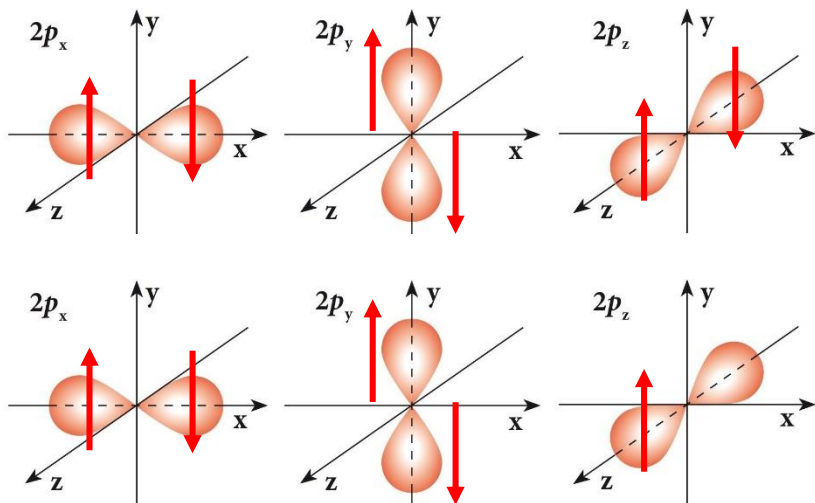
SKRAJNO POENOSTAVLJENA STRUKTURA ATOMA



jedro iz protonov in nevtronov

elektron

orbitala



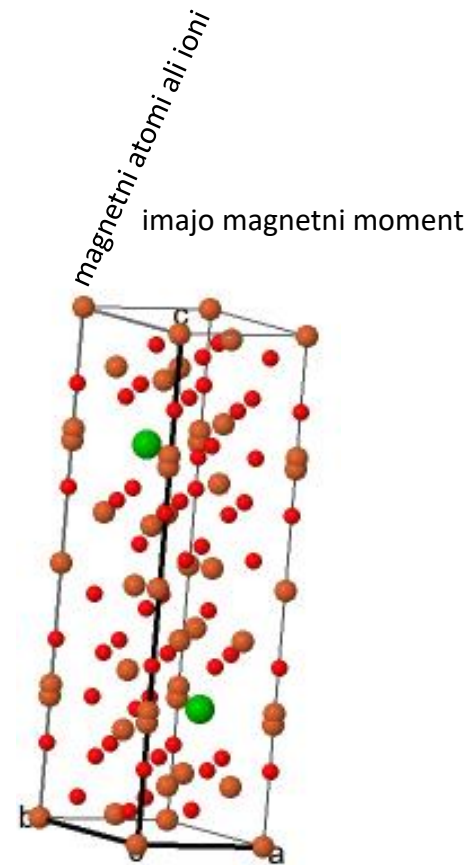
sparjeni elektroni
vsota spinov = 0

↓
magnetni moment = 0

nesparjeni elektroni
vsota spinov ≠ 0

↓
magnetni moment > 0

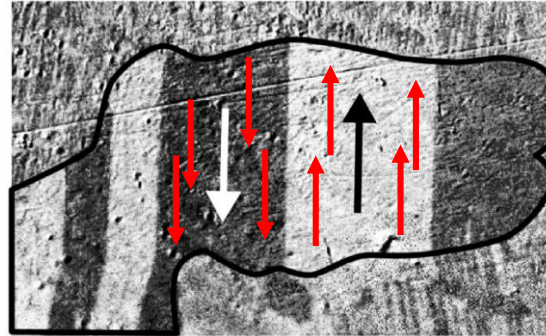
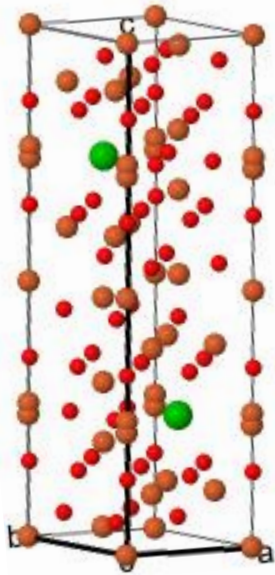
↑
smer spina elektrona



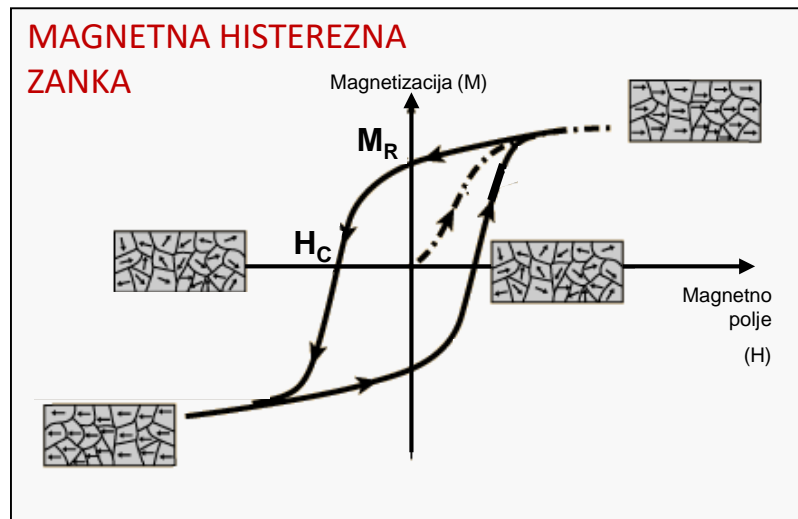
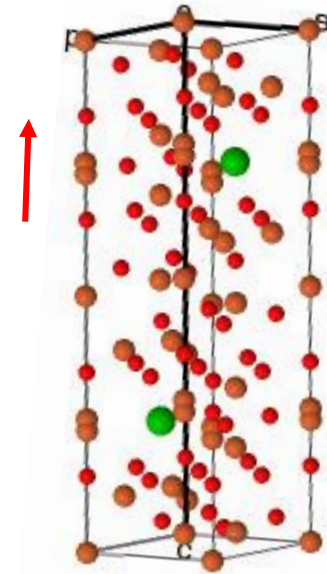
sklopitev = magnetna povezanost
magnetnih atomov v kristalu

↓
trajni magneti

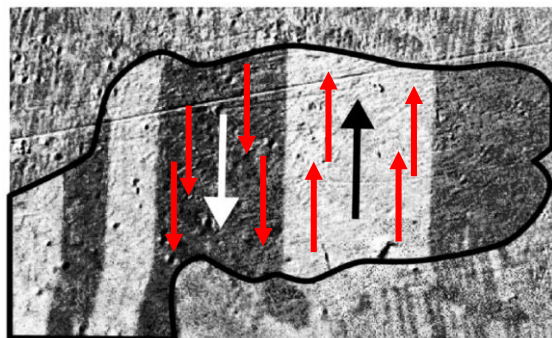
MAGNETNE DOMENE IN MAGNETIZACIJA



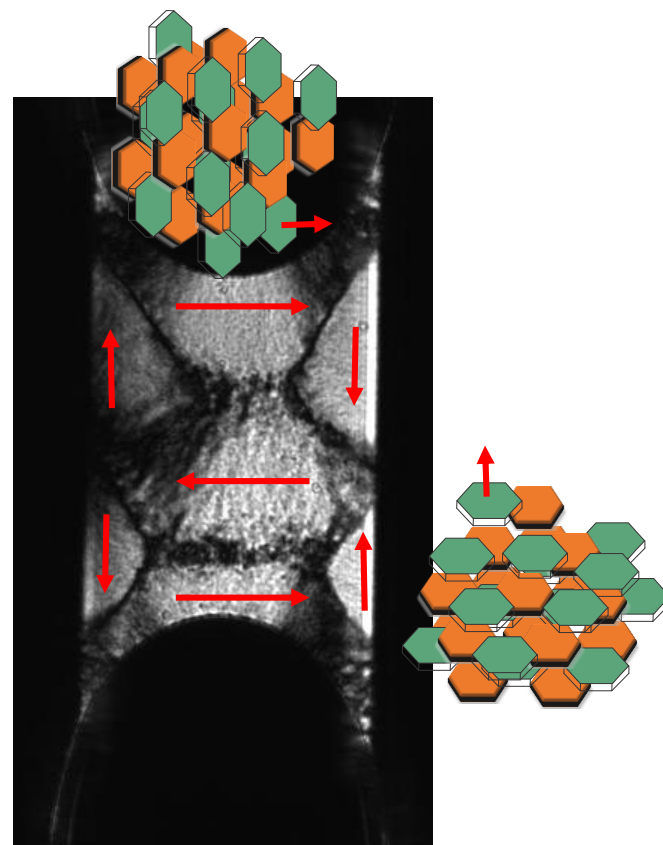
Magnetne domene zrna magnetne keramike, posnetek s Kerr-ovim mikroskopom (Zureks Wikimedia Commons)



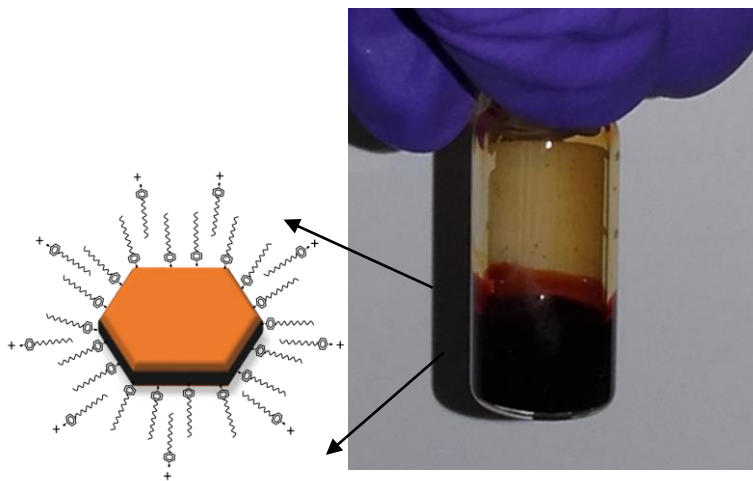
MAGNETNE DOMENE IN MAGNETIZACIJA



Magnetne domene zrnju magnetne keramike,
posnetek s Kerr-ovim mikroskopom
(Zureks Wikimedia Commons)

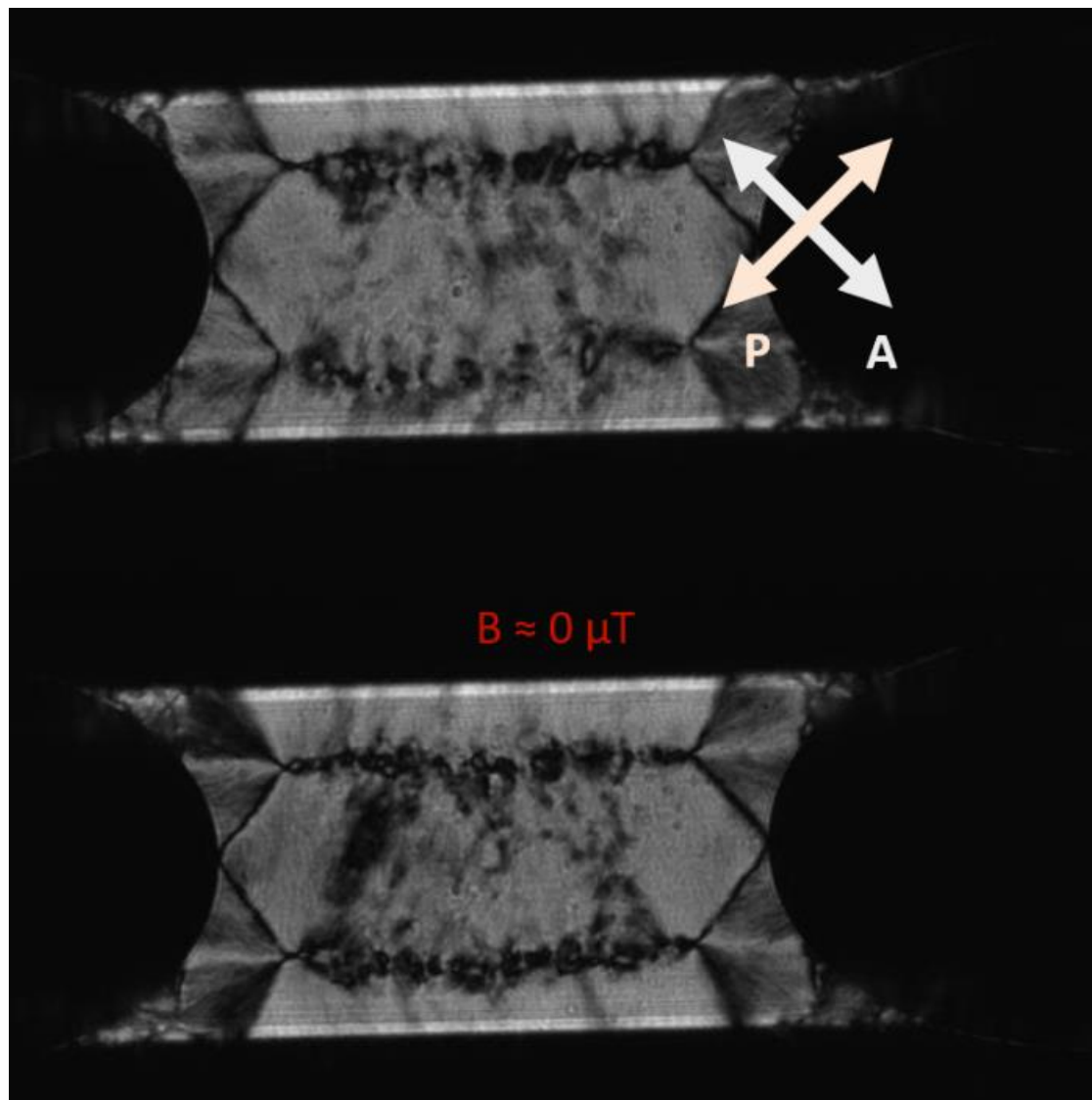


Magnetne domene v tekočem magnetu,
posnetek z optičnim mikroskopom:
N. Sebastian



Tekoči magnet:
shema, foto in izdelava: P. Hribar Boštjančič

MAGNETNE DOMENE IN MAGNETIZACIJA



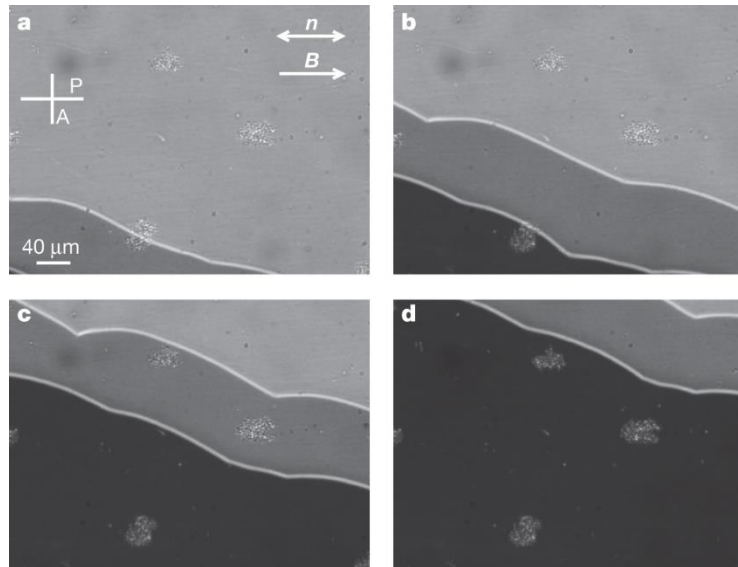
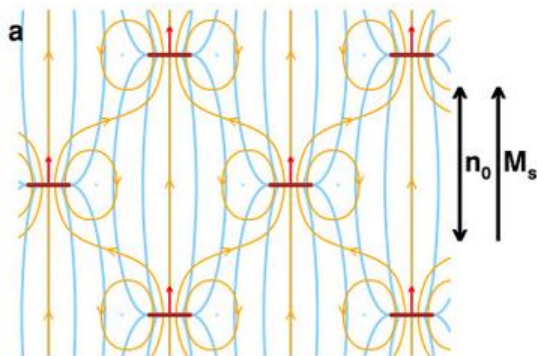
TEKOČE-KRISTALNA FEROMAGNETNA SUSPENZIJA PRVA FEROMAGNETNA TEKOČINA

ARTICLE

doi:10.1038/nature12863

Ferromagnetism in suspensions of magnetic platelets in liquid crystal

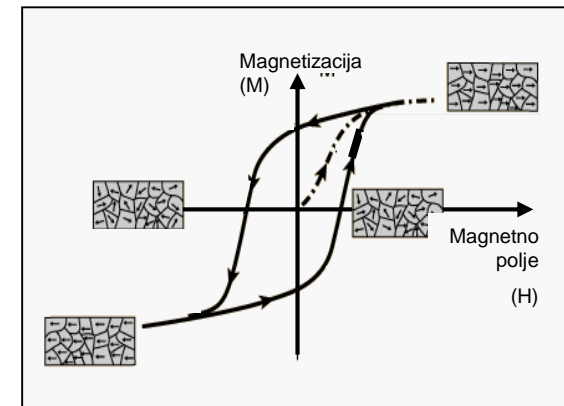
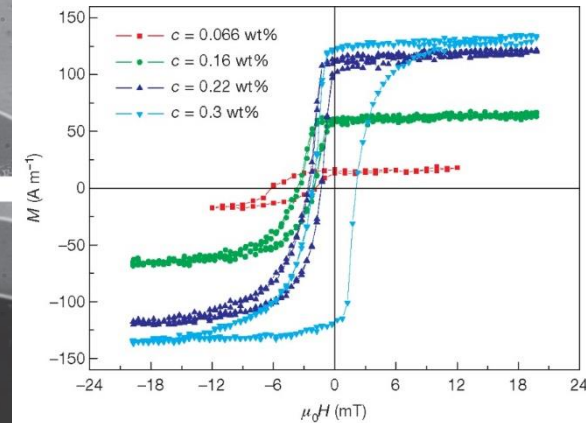
Aleka Mertelj¹, Darja Lisjak¹, Miha Drofenik^{1,2} & Martin Čopik^{1,3}



Sklopitev magnetnih
nanoploščic
tekoče-kristalnimi molekulami

Magnetne domene

MAGNETNA HISTEREZNA ZANKA

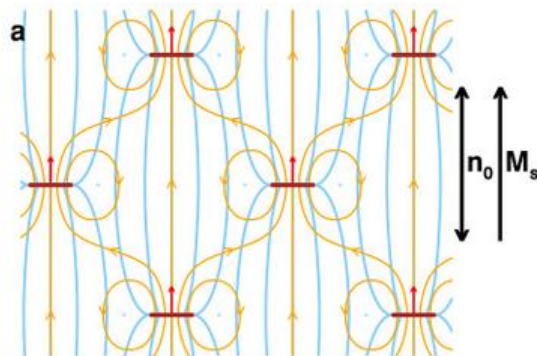


TEKOČE-KRISTALNA FEROMAGNETNA SUSPENZIJA PRVA FEROMAGNETNA TEKOČINA

ARTICLE

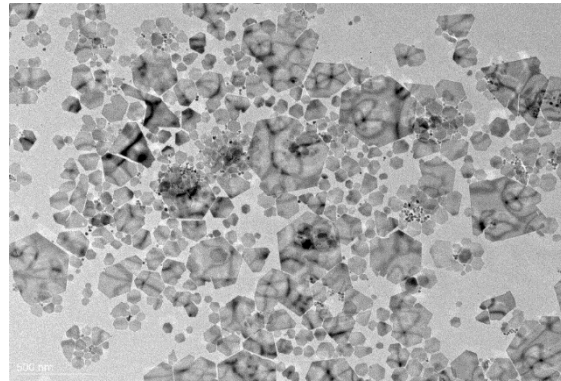
Ferromagnetism in suspensions of magnetic platelets in liquid crystal

Aleka Mertelj¹, Darja Lisjak¹, Miha Drofenik^{1,2} & Martin Čopik^{1,3}

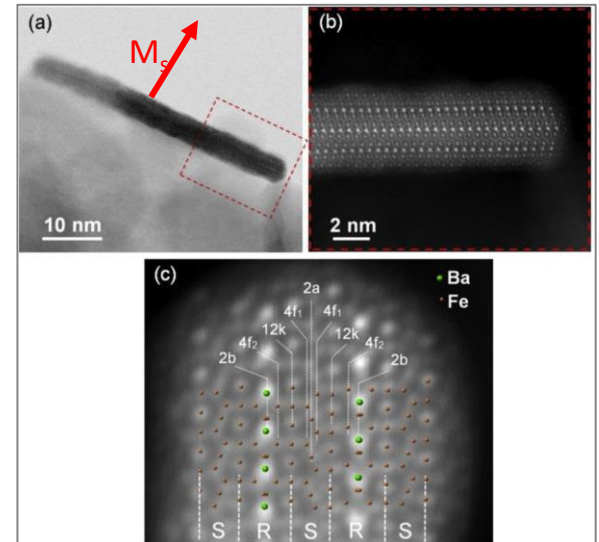


Sklopitev magnetnih
nanoploščic s
tekoče-kristalnimi molekulami

Magnetne nanoploščice

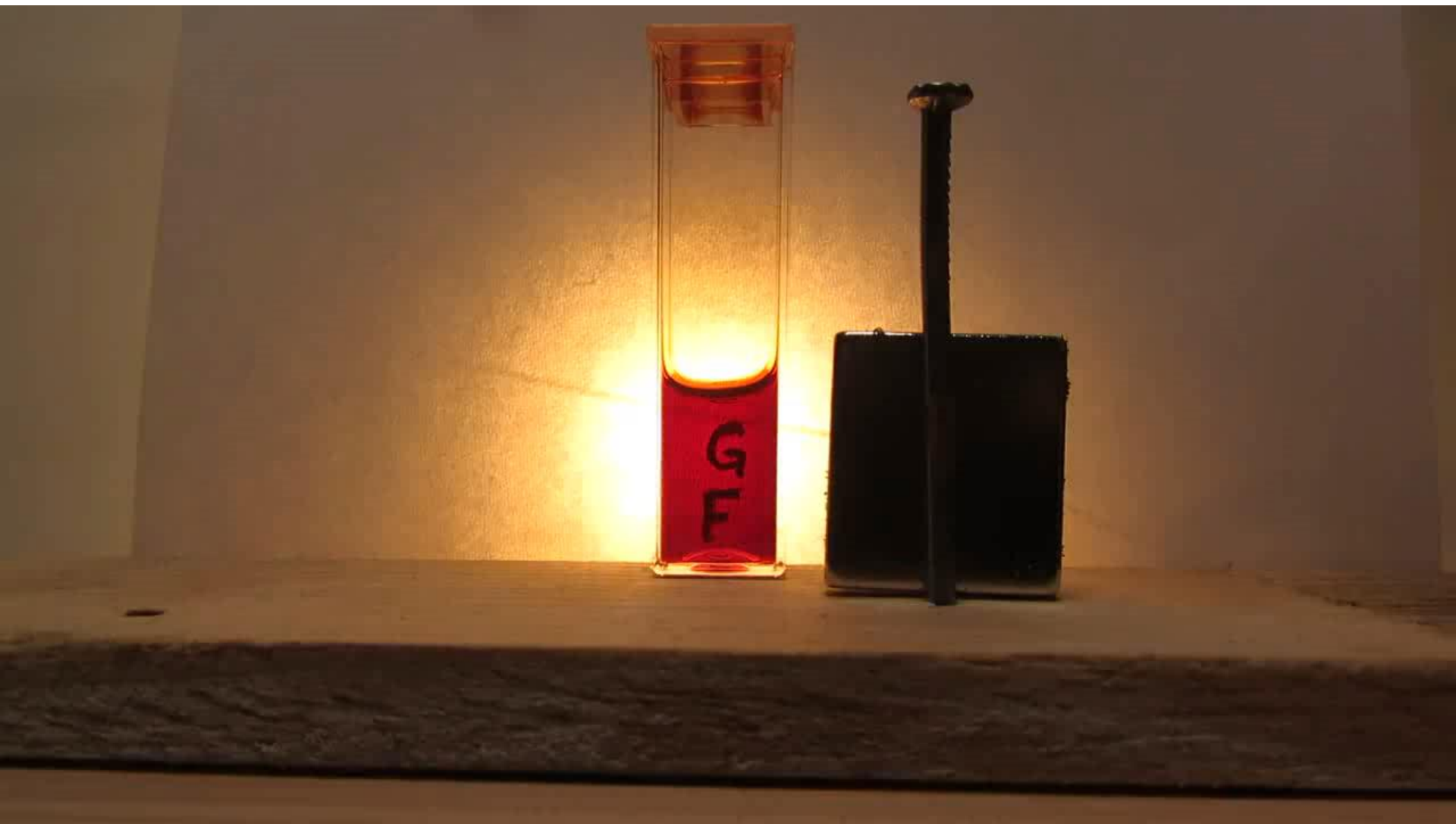


Posnetek s presevnim elektronskim mikroskopom
(D. Lisjak)



Posnetek magnetne nanoploščice z vrstičnim
presevnim mikroskopom z atomsko ločljivostjo:
D. Makovec, IJS (vir, Makovec in drugi, Acta Mater. 2019)

MAGNETO-OPTIČNE LASTNOSTI ZA SENZORJE



MINIATURNI MAGNETO-OPTIČNI SENZOR KOTA

V. Budinski,(FERI-UM-Maribor), v V. Budinski in drugi., Optics Lett. (2022)¹




This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 899285. European Commission

MAGNETO-ELEKTRIČNA TEKOČINA



Magneto-electric liquid
Better sensing

CONSORTIUM

 Jožef Stefan Institute
Ljubljana, Slovenia



PROJECT FACTS

STARTING DATE: November 2020

DURATION: 48 months

GRANT ID: 899285

PARTNERS: 5 from Slovenia, Italy and
Czech Republic.

COORDINATOR: Jožef Stefan Institute



www.magneliq.eu 

@MAGNELIQproject 

@MAGNELIQ project H2020 



MAGNELIQ is supported by the European
Commission under the Horizon 2020
framework programme (GA #899285)

NANODELCI: ZLATO

kristali zlata



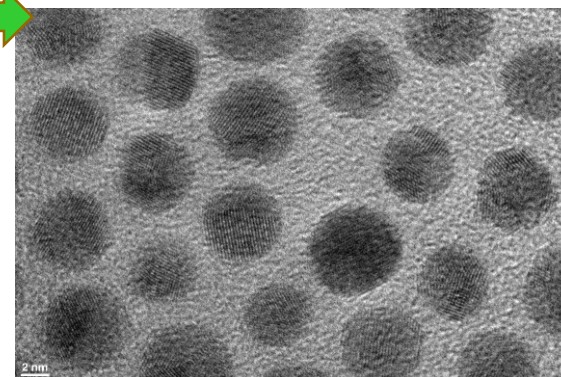
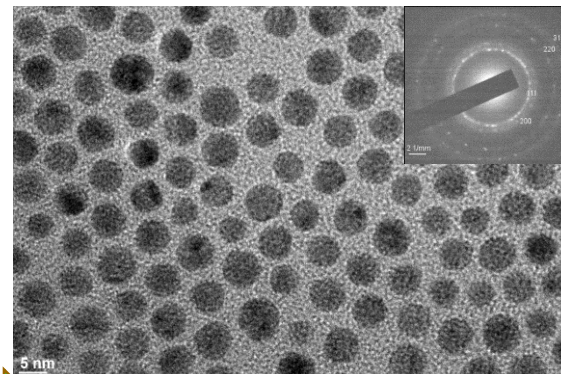
<https://en.wikipedia.org/wiki/File:Gold-crystals.jpga>



zlat obesek

vir: <https://zlatarnacelje.com/si/nakit/obeski/filter/zlato.html?p=2>

koloidno zlato



posnetek nanodelcev zlata s presevnim elektronskim mikroskopom

D. Lisjak

NANODELCI: SREBRO

Delovanje:

- antibakterijsko,
- antifungicidno – proti glivicam,
- antivirusno.




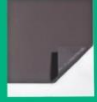

<http://www.nanotrade.cz/en/products/functional-wear>



<https://www.dove.com/us/en/men-care/deodorant/stick/men-care-cool-silver-deodorant-stick.html>



<https://www.vogue.co.uk/gallery/silver-skincare-products>

	 Askina® Calgitrol® Paste	 Askina® Calgitrol® THIN	 Askina® Calgitrol® Ag
Flat superficial wounds (low exuding wounds)	✓	✓	
Flat superficial wounds (highly exuding wounds)	✓		✓
Small sinuses and tunnels	✓	✓	
Deep cavity and difficult-to-dress wounds	✓		

<https://www.bbraun.com/en/products-and-solutions/therapies/wound-management/wound-infections/silver-dressings-in-wound-care.html#application-recommendations-one-technology-three-products>

NANODELCI: SREBRO

KAJ JE KOLOIDNO SREBRO?

Koloidno srebro je **raztopina** v koncentraciji 20ppm (število delcev čistega srebra premera 0,0001 mikrona na milion delcev večkrat vode). Koloidno srebro je zelo **učinkovita naravna alternativa sintetičnim antibiotikom**. Za razliko od sintetičnih antibiotikov, kolele bakterij, ampak tudi viruse, glivice in druge patogene organizme (parazite).



KOLOIDNO SREBRO POMAGA PRI



Gripi in prehladu



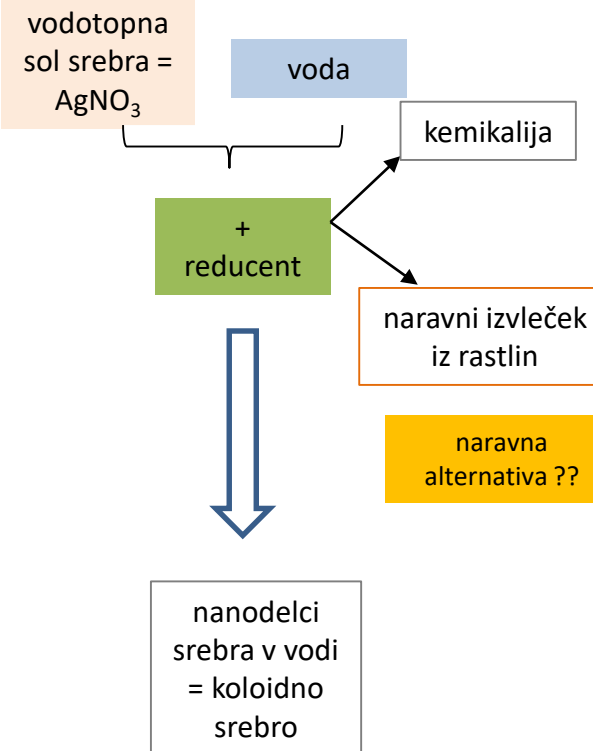
Bolečem grlu



Raznih alergijah

Težav

Osnovni potek sinteze nanodelcev srebra



NANODELCI: SREBRO

[DOMOV](#)[KAJ JE KOLOIDNO SREBRO?](#)[KAKO POMAGA?](#)[NAROČILO](#)

Uporaba koloidnega srebra **v zdravstvene namene** se je po Evropi začela že pred leti. Tudi v Sloveniji vedno več ljudi posega po **učinkovitem sredstvu za zdravljenje mnogih bolezni**. Koloidno srebro ne pušča stranskih učinkov, je naravni antibiotik in učinkovita alternativa vsem sintetičnim antibiotikom.

Mnoge raziskave dokazujejo, da ima antibakterijski učinek in da deluje proti **virusom** in **glivicam**, mikoplazami in nekaterim parazitom. Njegovo uspešno delovanje je opisano pri širokem spektru bolezni. Pomembno je, da je uporaben tudi za preventivo in podporo zdravljenju, saj nadomesti ali **razbremeni imunski sistem organizma**.

https://koloidnosrebro.si/?gclid=CjwKCAjw7p6aBhBiEiwA83fGuqXPBLmrxDnEXB_qlAyDk_L9fm7aoJWRlw8vD_BwE#kaj-je-koloidno-srebro?

ZAKAJ UPORABLJATI KOLOIDNO SREBRO?



VSESTRANSKA UPORABA:

Preventiva in kurativa pri širokem spektru bolezni.



DELUJE ANTIBAKTERIJSKO:

Deluje proti bakterijam, virusom, glivicam in parazitom.



CELI POŠKODOVANO KOŽO:

Deluje



KR

Na



UP

Z n



A 92-year-old asymptomatic Caucasian man. Generalized argyria: For many years, this man had used nose drops containing silver. His skin biopsy showed silver deposits in the dermis, confirming the diagnosis of argyria. Although its pigmentary changes are permanent, argyria has no known effect on health.

Vir. https://en.wikipedia.org/wiki/Argyria#/media/File:Argyria_2b.jpg

NANODELCI: SREBRO

Is colloidal silver FDA-approved?

The U.S. Food and Drug Administration (FDA) warns that colloidal silver is more snake oil than magic bullet. The FDA has even [taken action against companies](#) selling the product as a cure-all.

They came out strongly in 1999 [with this statement](#):

“Over-the-counter drug products containing colloidal silver ingredients or silver salts for internal or external use are not generally recognized as safe and effective and are misbranded ... products containing colloidal silver ingredients or silver salts are being marketed for numerous serious disease conditions and FDA is not aware of any substantial scientific evidence that supports the use of over-the-counter colloidal silver or ingredients or silver salts for these disease conditions.”

Translation: Colloidal silver is **not** FDA-approved. There is **no** proof it can treat any diseases

Ameriška agencija za hrano in zdravila ni odobrila koloidnega srebra. Ne obstaja n dokaz, da bi z njim pozdravili katerokoli bolezen.

vir: <https://health.clevelandclinic.org/is-colloidal-silver-safe/>

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10/6/22, 9:48 AM

CFR - Code of Federal Regulations Title 21



[FDA Home](#)³ [Medical Devices](#)⁴ [Databases](#)⁵

CFR - Code of Federal Regulations Title 21

The information on this page is current as of Jul 20, 2022.

For the most up-to-date version of CFR Title 21, go to the Electronic Code of Federal Regulations (eCFR).⁶

New Search

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[Code of Federal Regulations]
[Title 21, Volume 5]
[CITE: 21CFR310.548]

TITLE 21--FOOD AND DRUGS
CHAPTER I--FOOD AND DRUG ADMINISTRATION
DEPARTMENT OF HEALTH AND HUMAN SERVICES
SUBCHAPTER D - DRUGS FOR HUMAN USE
PART 310 -- NEW DRUGS

Subpart E - Requirements for Specific New Drugs or Devices

Sec. 310.548 Drug products containing colloidal silver ingredients or silver salts offered over-the-counter (OTC) for the treatment and/or prevention of disease.

(a) Colloidal silver ingredients and silver salts have been marketed in over-the-counter (OTC) drug products for the treatment and prevention of numerous disease conditions. There are serious and complicating aspects to many of the diseases these silver ingredients purport to treat or prevent. Further, there is a lack of adequate data to establish general recognition of the safety and effectiveness of colloidal silver ingredients or silver salts for OTC use in the treatment or prevention of any disease. These ingredients and salts include, but are not limited to, silver proteins, mild silver protein, strong silver protein, silver, silver ion, silver chloride, silver cyanide, silver iodide, silver oxide, and silver phosphate.

(b) Any OTC drug product containing colloidal silver ingredients or silver salts that is labeled, represented, or promoted for the treatment and/or prevention of any disease is regarded as a new drug within the meaning of section 201(p) of the Federal Food, Drug, and Cosmetic Act (the act) for which an approved application or abbreviated application under section 505 of the act and part 314 of this chapter is required for marketing. In the absence of an approved new drug application or abbreviated new drug application, such product is also misbranded under section 502 of the act.

(c) Clinical investigations designed to obtain evidence that any drug product containing colloidal silver or silver salts labeled, represented, or promoted for any OTC drug use is safe and effective for the purpose intended must comply with the requirements and procedures governing the use of investigational new drugs as set forth in part 312 of this chapter.

(d) After September 16, 1999, any such OTC drug product containing colloidal silver or silver salts initially introduced or initially delivered for introduction into interstate commerce that is not in compliance with this section is subject to regulatory action.

[64 FR 44658, Aug. 17, 1999]

<https://www.accessdata.fda.gov/scripts/cdrh/cfdocs/cfcr/CFRSearch.cfm?f=310.548>

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vir: <https://www.fda.gov/inspections-compliance-enforcement-and-criminal-investigations/warning-letters/colloidal-vitality-llc/vital-silver-604885-03062020>

Product: Drugs

Recipient:
Jennifer Hickman
Colloidal Vitality LLC/Vital Silver
3183 Forest Creek Dr.
Melbourne, FL 32901
United States
[✉ jennifer@purevitalsilver.com](mailto:jennifer@purevitalsilver.com)

Issuing Office:
Center for Drug Evaluation and Research | CDER
United States
[Federal Trade Commission](#)

WARNING LETTER

Date March 6, 2020

TO: jennifer@purevitalsilver.com – Jennifer Hickman, Colloidal Vitality LLC
3183 Forest Creek Dr.
Melbourne, FL 32901

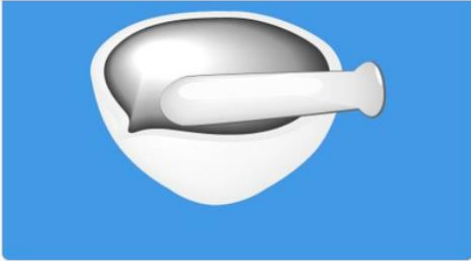
RE: Unapproved and Misbranded Products Related to Coronavirus Disease 2019 (COVID-19)

This is to advise you that the United States Food and Drug Administration (FDA) and the Federal Trade Commission (FTC) reviewed your website at the internet address www.purevitalsilver.com in February 2020. We have also reviewed your Facebook website at www.facebook.com/purevitalsilver where you direct consumers to your website www.purevitalsilver.com to purchase your products. The FDA has determined that your website offers essential oil products for sale in the United States and that these products are intended to mitigate, prevent, treat, cure or diagnose COVID-19¹ in people. FDA has determined that these products are unapproved new drugs sold in violation of section 505(a) of the Federal Food, Drug, and Cosmetic Act (FD&C Act), 21 U.S.C. 355(a). Furthermore, these products are misbranded drugs under section 502 of the FD&C Act, 21 U.S.C. 352. The introduction or delivery for introduction of these products into interstate commerce is prohibited under section 301(a) and (d) of the FD&C Act, 21 U.S.C. § 331(a).

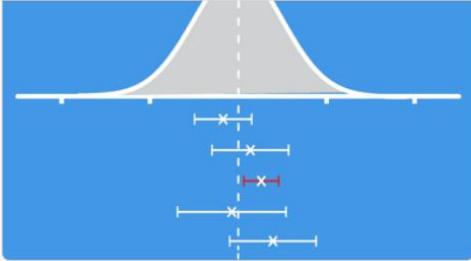
Slovensko kemijsko društvo

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Sekcija za živilsko kemijo




Sekcija EURACHEM Slovenija




Sekcija za okolje



Sekcija mladih kemikov



Komisija za kemijsko nomenklaturu in terminologijo



Komisija za kemijsko izobraževanje

<http://www.chem-soc.si/>

Znanost na cesti

NAPOVED

9. november 2022 ob 19ih, Vipava
dr. Imre Cikaljo (Univerza v Novi Gorici)

16. november 2022 ob 19ih, Atrij ZRC
dr. Uroš Novak (Kemijski inštitut)
Naravni biopolimeri in njihov prispevek k
družbi 5.0

23. november 2022 ob 19.00, Mestna knjižnica Kranj
dr. Marko Topič (Fakulteta za elektrotehniko, UL)
Fotovoltaika – ključna tehnologija zelene transformacije in
energetske neodvisnosti