

Nanostructurare in cimp apropiat intensificat pe particule coloidale auto-organizate pe diferite suprafete

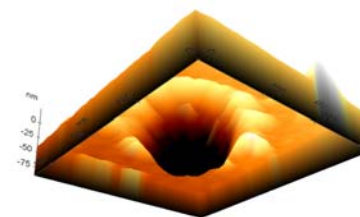
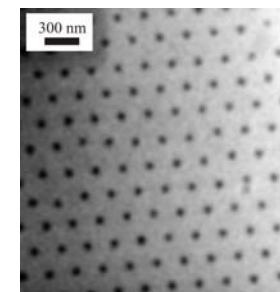
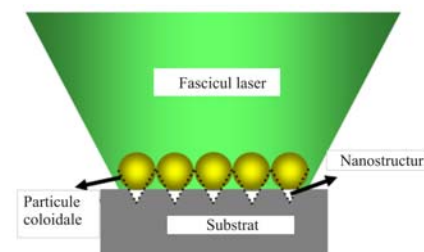
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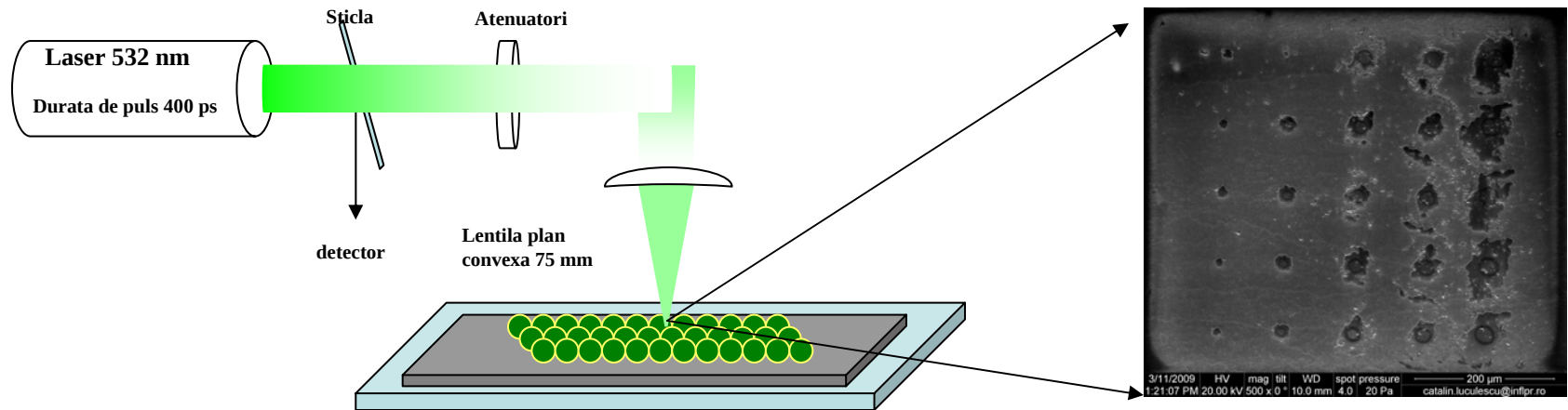
Obiectiv: nanostructurari pe diferite suprafete: sticla, filme subtile metalice (Ag, Au, Co).

Teorie: intensificare in cimp apropiat, simulari FDTD

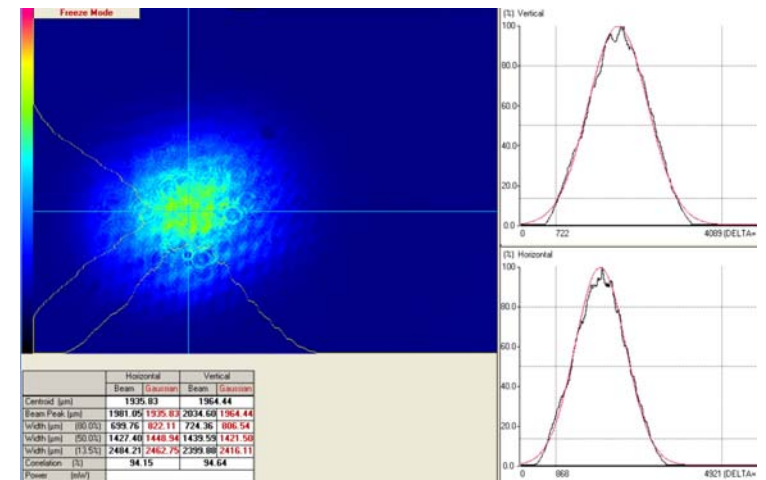
Caracterizare: laser $\lambda = 532$ nm, $\tau = 400$ ps, SEM, AFM



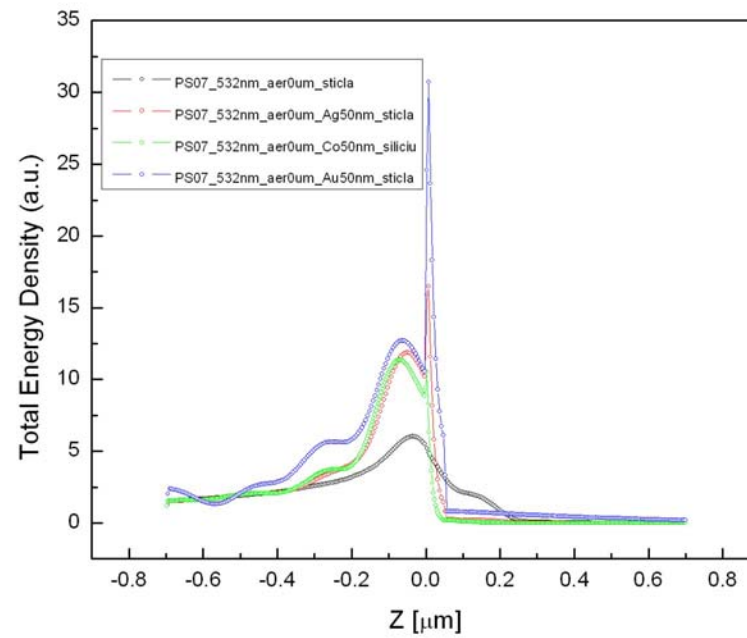
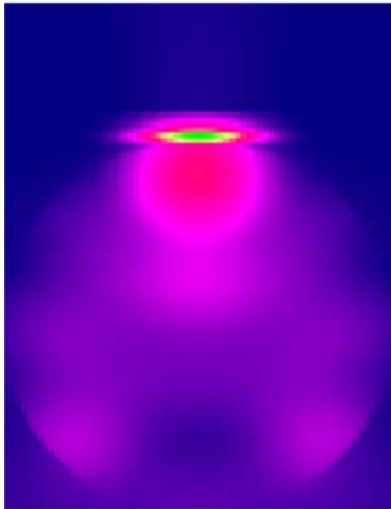
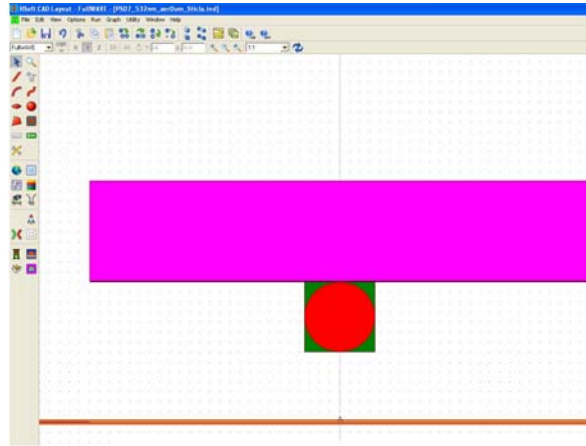
Dispozitiv experimental



Lungimea de unda laser	532 nm
Energia maxima/puls	9mJ la 532 nm
Abaterea standard a puterii medii de fascicul	< 2% la 532 nm
Frecventa de repetitie	1 Hz
Diametrul de fascicul	26 µm



Teorie FDTD



Auto-organizarea particulelor coloidale pe diferite suprafețe

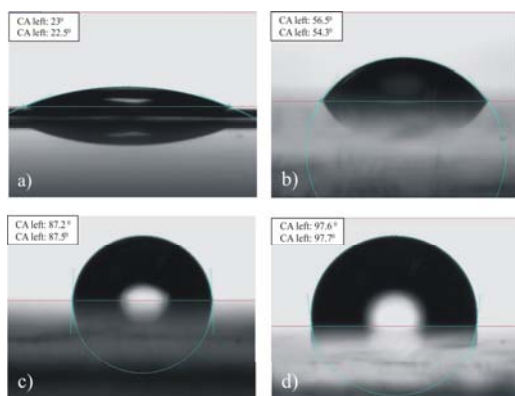


Figure 2 Contact angle of a water drop on different surfaces: a) mica, b) glass, c) Au thin film, d) Ag thin film.

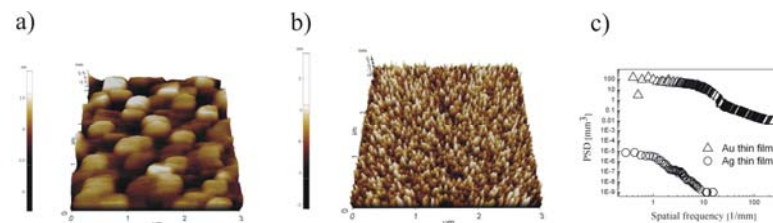


Figure 3 AFM contact mode image of a) Ag thin film (scanned area $3 \times 3 \mu\text{m}^2$), b) Au thin film (scanned area $3 \times 3 \mu\text{m}^2$), c) PSD computed from the AFM surface profile measurements for the Ag and Au thin film.

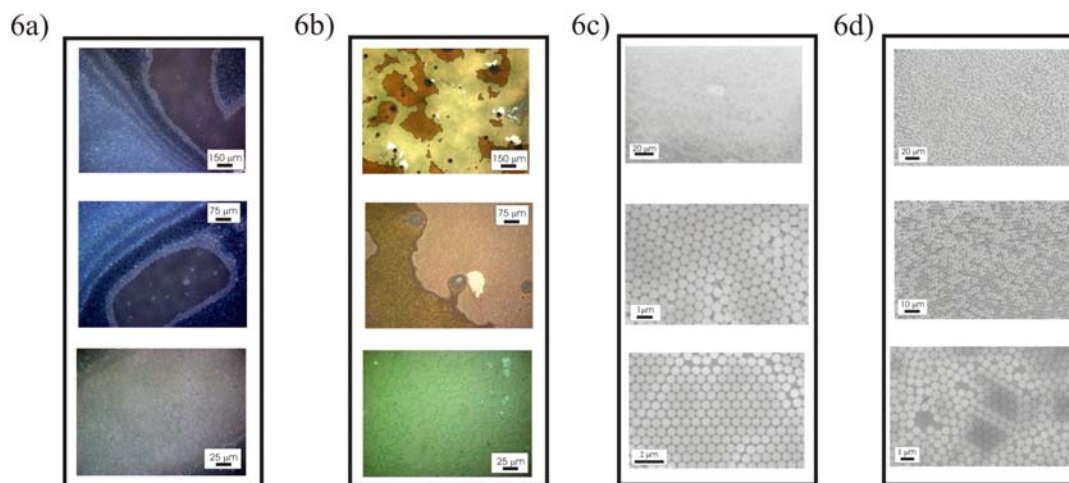
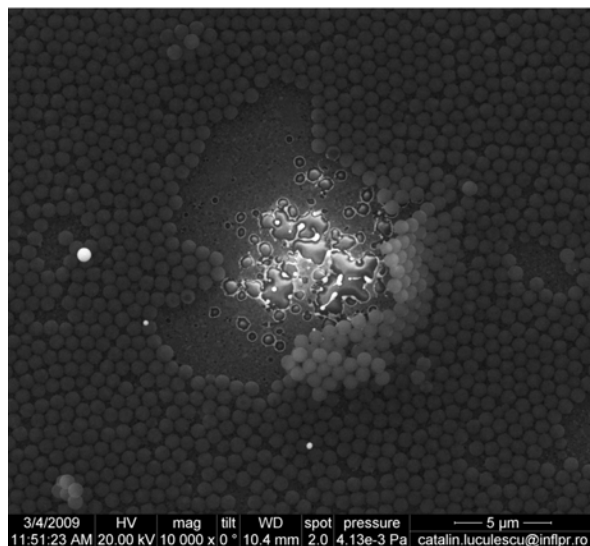


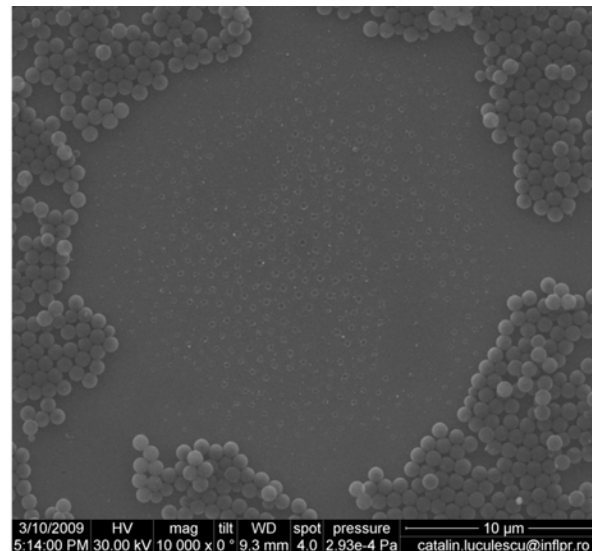
Figure 6 Optical microscopy and SEM images presenting the self-assembly arrangements for mica surface (6a), glass substrate (6b), Ag thin film (6c) and Au thin film (6d)

Caracterizarea nanostructurilor obtinute pe diferite filme subtiri

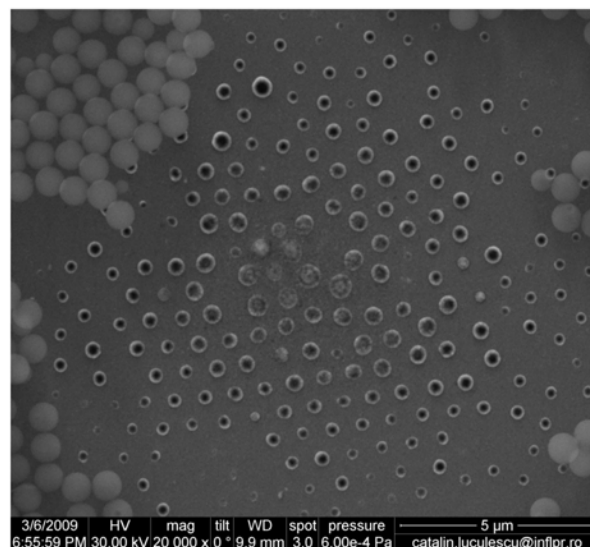
Ag



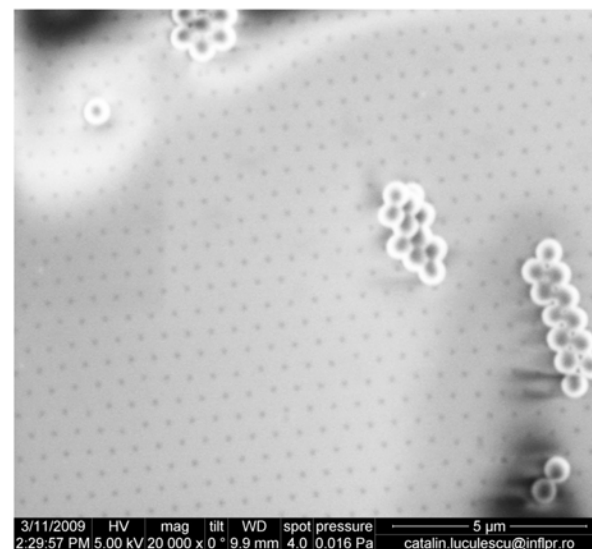
Co



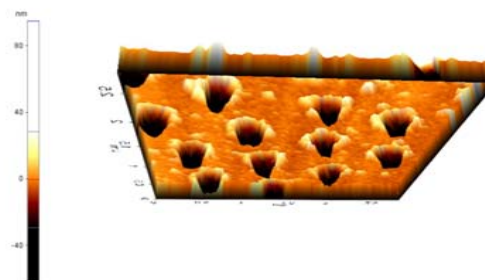
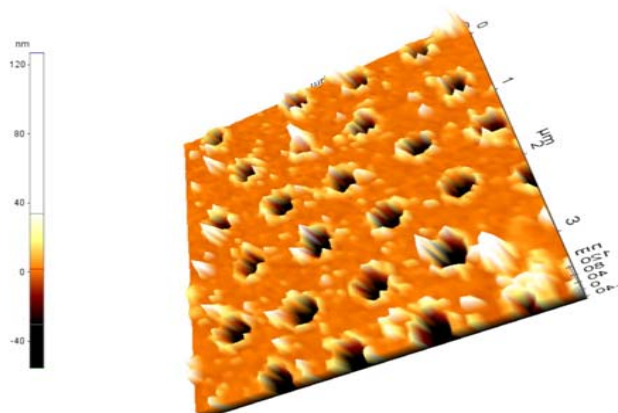
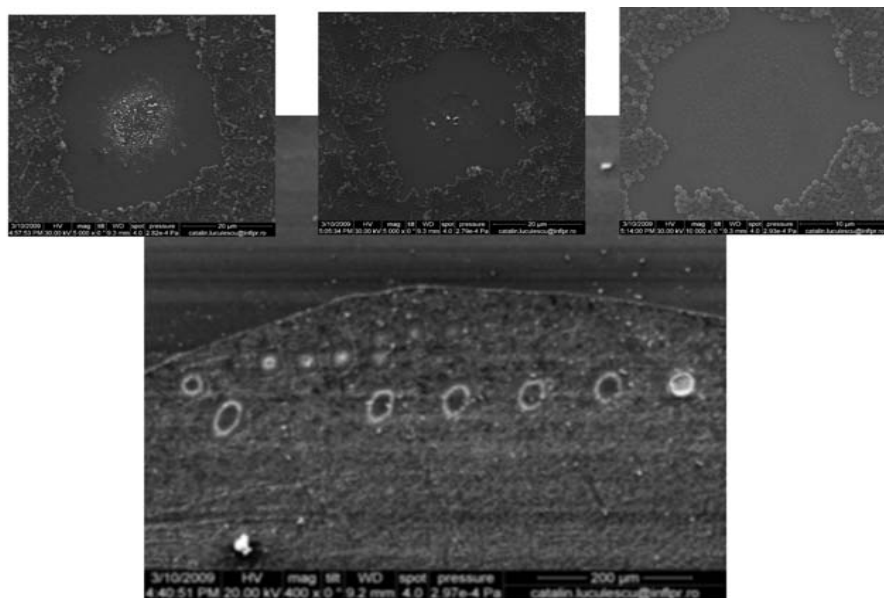
Au



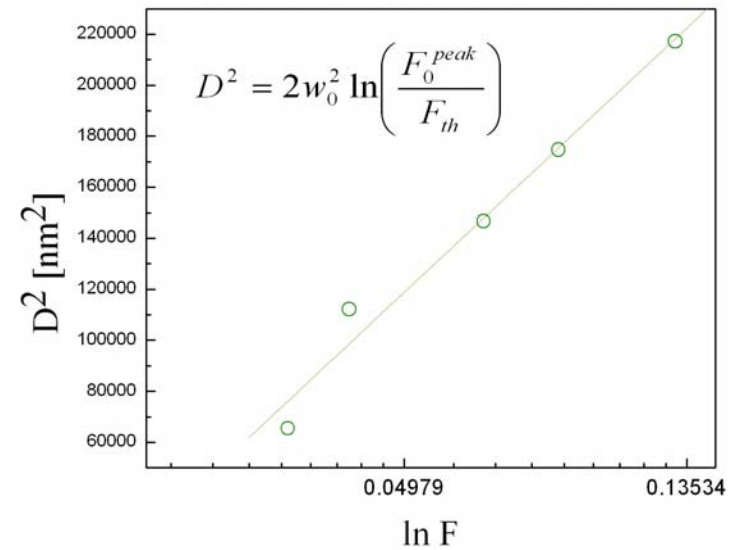
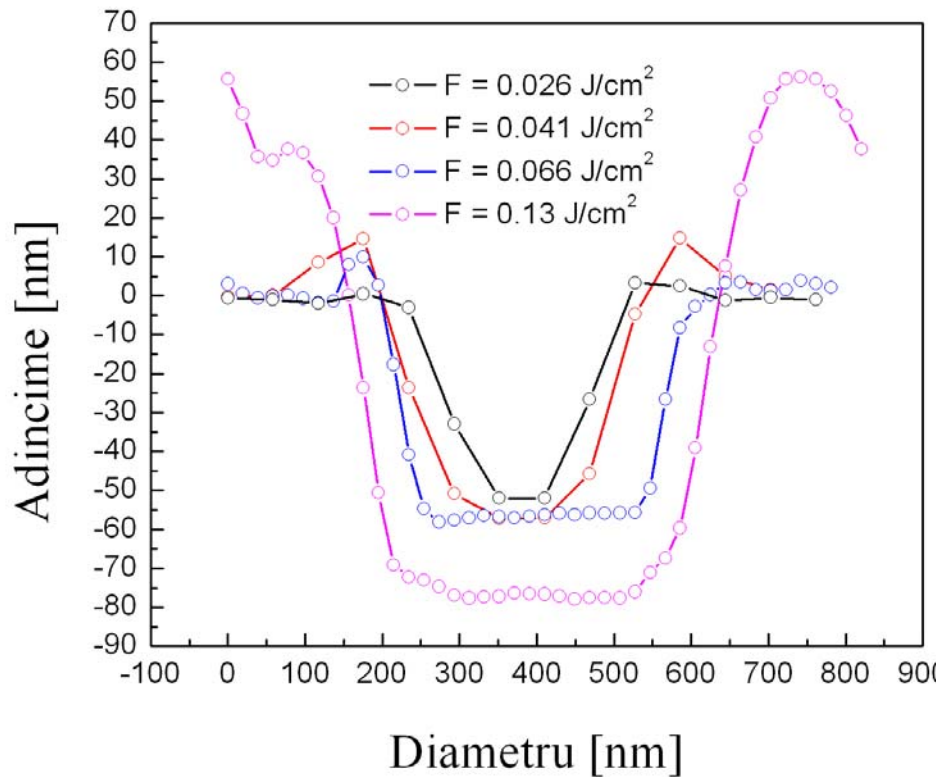
Sticla



Caracterizarea nanostructurilor obtinute pe filmul subtire de Co

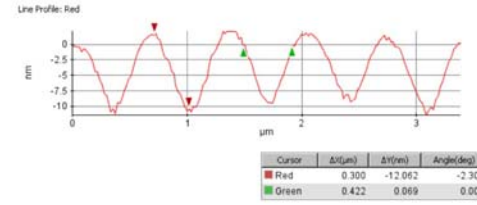
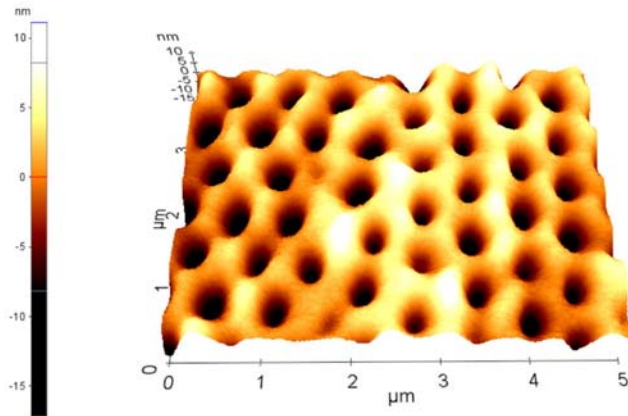


Caracterizarea nanostructurilor obtinute pe filmul subtire de Co

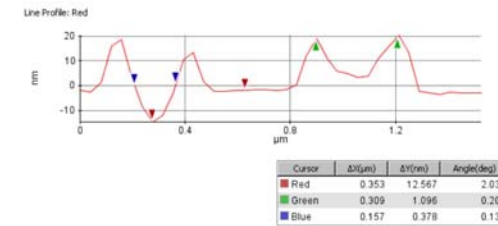
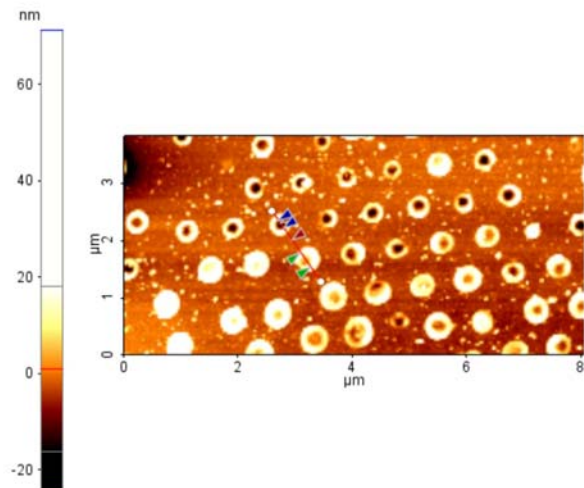


Prag ablatie film subtire Co	$\sim 0.74 \text{ J/cm}^2$
Prag ablatie in cimp apropiat film subtire Co	$\sim 0.026 \text{ J/cm}^2$

Caracterizarea nanostructurilor obtinute

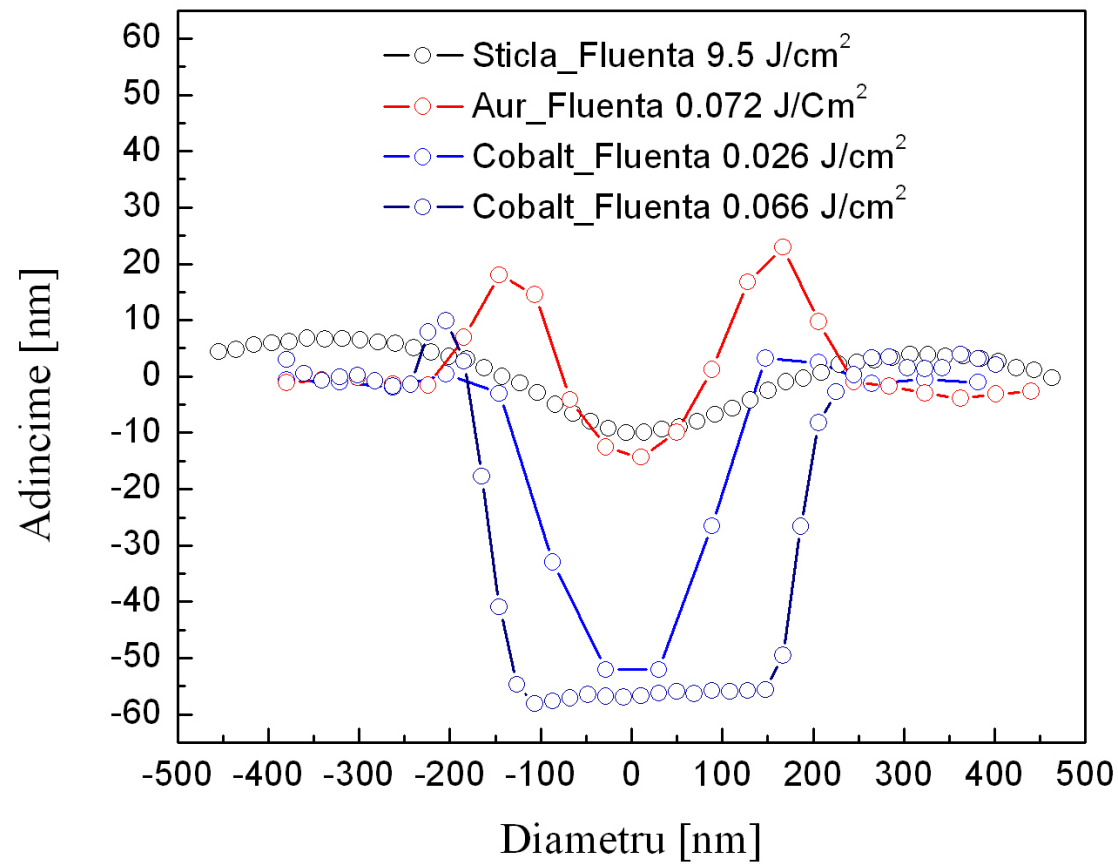


sticla



film subtire Au

Caracterizarea nanostructurilor obtinute



Mulumiri

Dr. Marian Zamfirescu – ablatie laser in cimp apropiat/simulari FDTD

Laurentiu Rusen, Dr. Aurel Stratan, Dr. Razvan Dabu - laser picosecunde

Dr. Catalin Luculescu – masuratori SEM

Antoni Moldovan – masuratori AFM

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