

□ Etapa 4: Proiectare structuri experimentale

Termen: 15 decembrie 2009;

Credit de angajament: 105.619 lei;

Cofinantare: 2.376 lei;

Achizitii realizate: 0;

Obiective:

- Proiectare/realizare masti pentru structuri experimentale;
- Proiectare/experimentare fluxuri tehnologice pentru structuri experimentale;
- Identificarea si atribuirea drepturilor de proprietate – redactare brevet;
- Activitati suport-diseminare.

Precursori / rezultate intermediare:

- Masti pentru microrezonatoare optice;
- Masti pentru lentile Fresnel cu patru nivele;
- Fluxuri tehnologice pentru structuri experimentale;
- Subansamble micromecanice pentru optimizarea procesului de replicare;
- Montaj experimental pentru caracterizari microfizice;

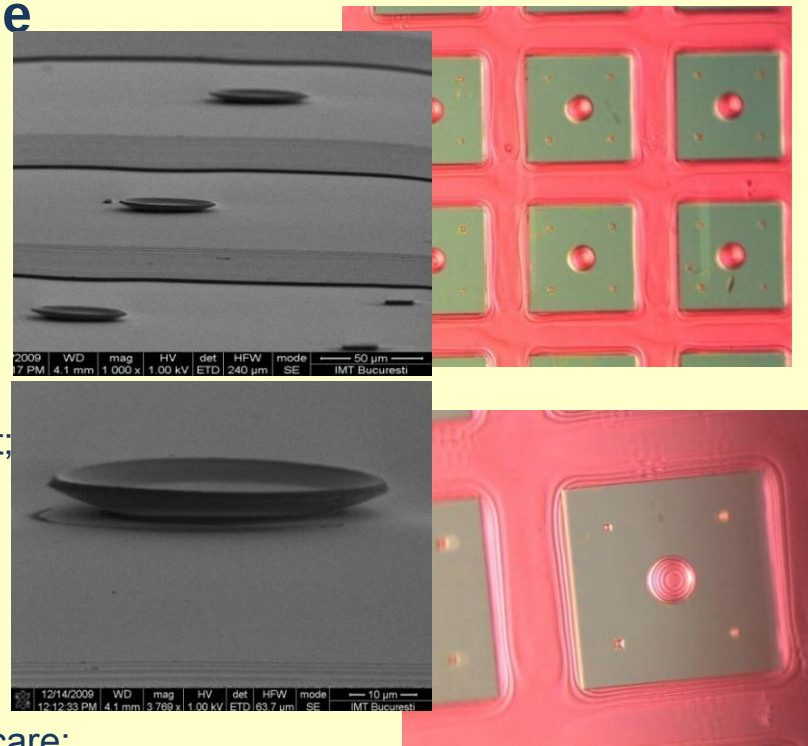
Brevet “Procedeu de realizare si replicare microrezonatoare optice in polimeri”, autori: P.Obreja, E.Budianu, D.Cristea, M.Kusko, R.Rebigan – propunere inregistrata la OSIM cu nr. A/01026/ 07.12.2009;

Comunicari (2)

- R.Rebigan, A.Dinescu, C.Kusko, F.Comanescu, D.Cristea, “Process development for micro-nano patterning of metallic layers with applications in photonics”, Proc. 32nd Int. Semiconductor Conf., Sinaia, Romania, 2009, p.193-196;
- I.Stanciu, P.Obreja, L.Eftimie, D.Cristea, R.Muller, D.Dascalu, “ Realisation of microfluidic components using the casting replication method”, Proc. 32nd Int. Semiconductor Conf., Sinaia, Romania, 2009, p.227-230;

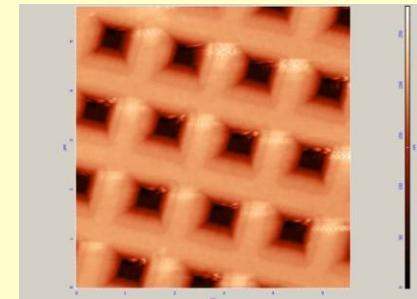
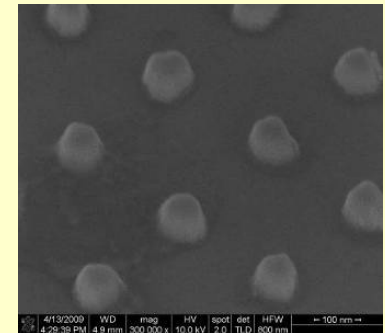
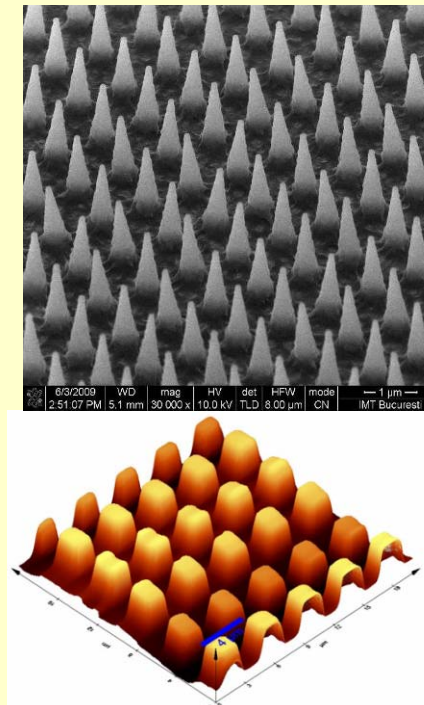
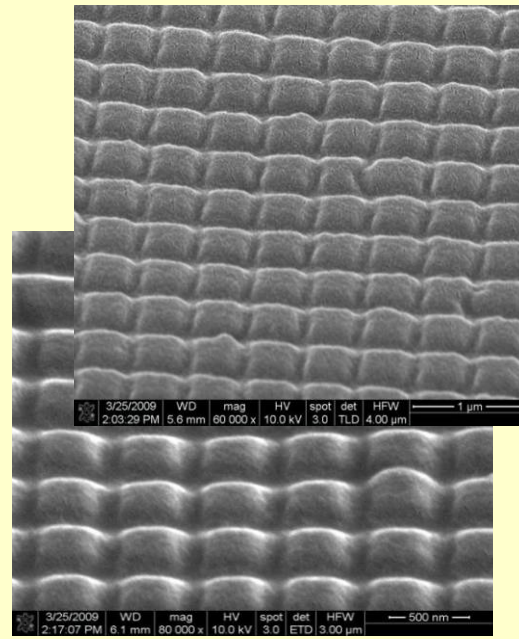
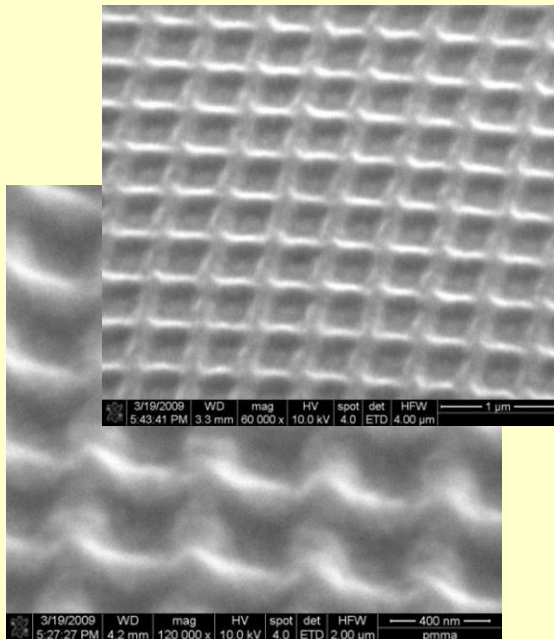
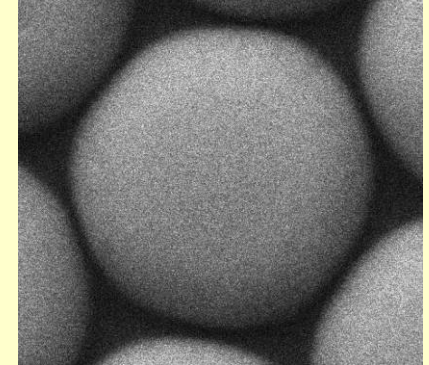
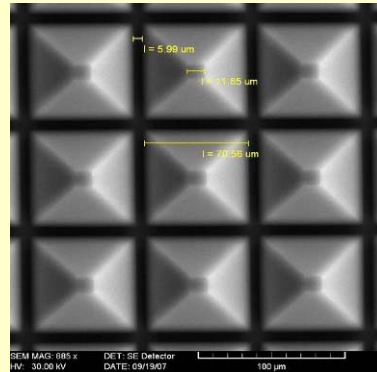
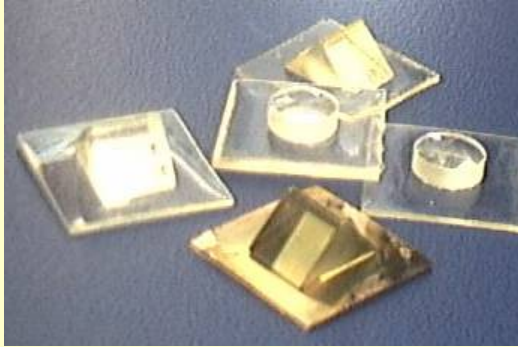
Activitati suport/diseminare:

- Vizite de lucru/schimburi de buna practica intre parteneri;
- Simpozion CNMP “Parteneriate in domeniile prioritare”, Bucuresti, 23.11.2009



Imagini ale microrezonatorului optic (SEM, microscopie optica)

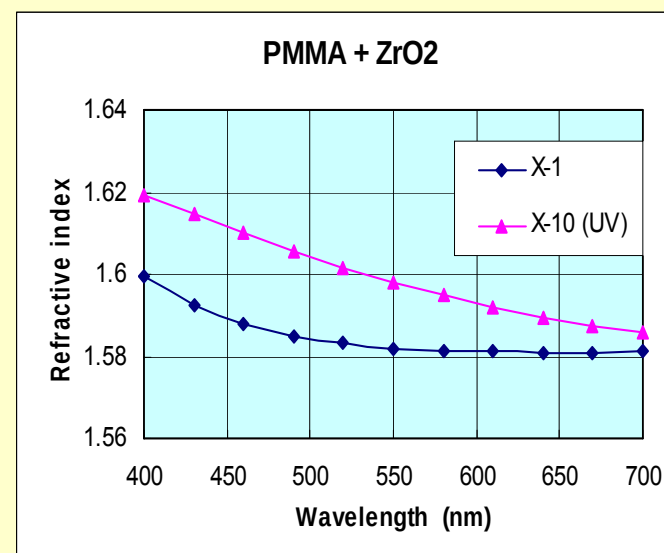
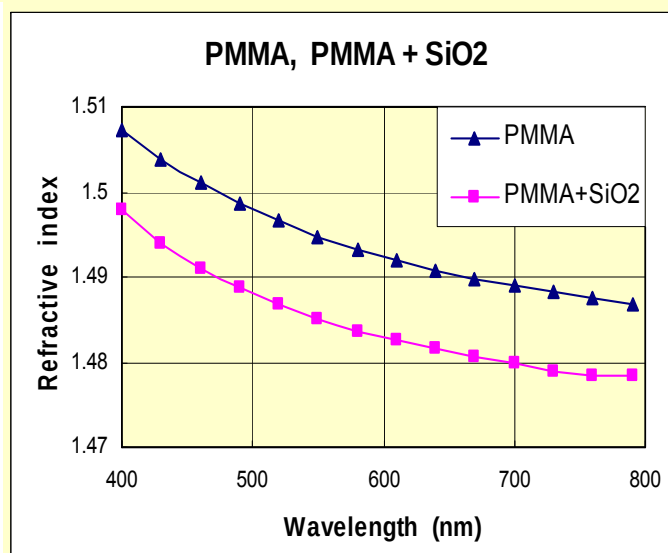
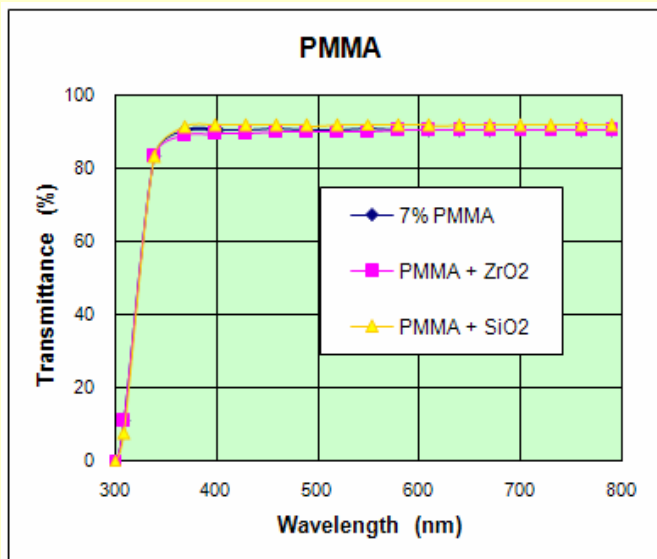
❑ Componente optice realizate in cadrul proiectului: prisme, piramide, micro-lentile, lentile Fresnel, canale, structuri rectangulare, pilari, cristale fotonice, micro/nano - toroide



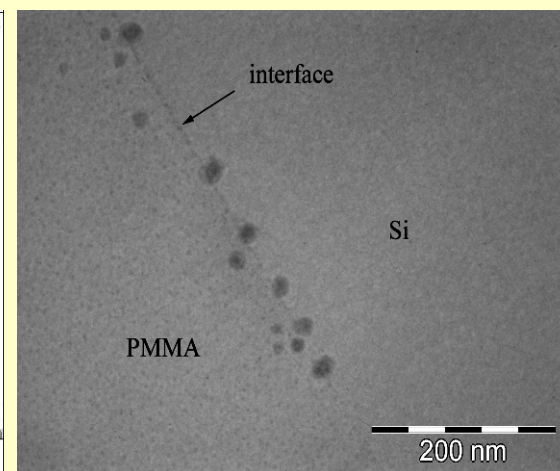
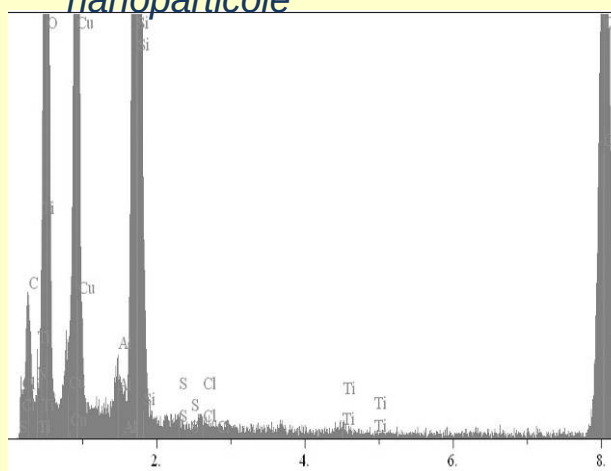
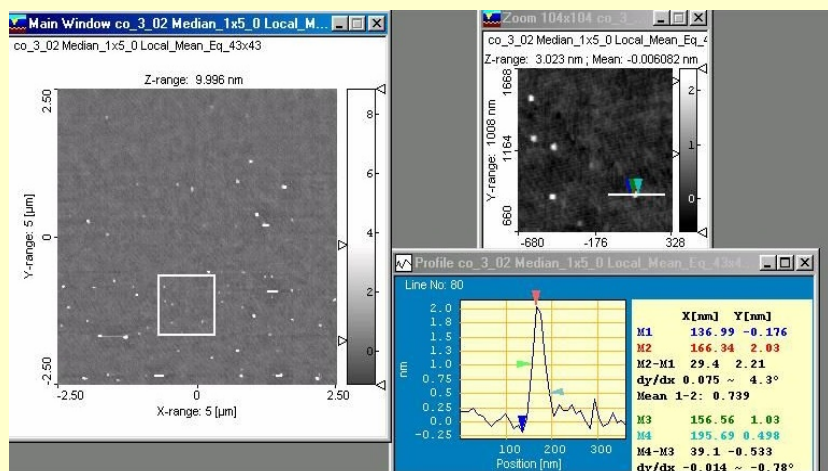
❑ Aplicatii: componente optice individuale sau ca elemente optice incorporate in retele de difracție, microfluidica, lab-on-chip, (bio)senzori, microsisteme.

❑ Materiale realizate in cadrul proiectului: polimeri cu proprietati optice controlate

(ex: 90 % coeficient de transmisie, indice de refractie controlat prin dopare cu nanoparticole)



Curbele de transmisie si indicele de refractie functie de lungimea de unda pentru straturi de PMMA dopate cu nanoparticole



Imagini AFM, spectrul EDX si imaginea XTEM pentru un strat de PMMA dopat cu particole de TiO