



**TEMATICĂ PENTRU ADMITEREA LA STUDII  
UNIVERSITARE DE DOCTORAT  
SDSI – Domeniul : *INGINERIA MATERIALELOR*  
Prof. univ. dr. habil. ing. BRATU Vasile**

**A. PROPUNERI:**

1. Cercetări privind îmbunătățirea calității oțelurilor inoxidabile utilizate la fabricarea aparatelor de uz casnic;
2. Cercetări privind modelarea matematică în domeniul proceselor obținerii și caracterizării materialelor;
3. Contribuții la îmbunătățirea structurii și proprietăților topiturilor metalice, fenomene interfazice la elaborarea aliajelor;
4. Contribuții la sudarea cu curenți de înaltă frecvență.

**B. BIBLIOGRAFIE SELECTIVĂ:**

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3. Vasile Bratu, Ioan Dragomir, Fenomene interfazice la elaborarea aliajelor speciale - Editura Bibliotheca, Targoviste, 2014;
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  22. Nicolae Pop, Luige Vladareanu, Ileana Nicoleta Popescu\*, Constantin Ghiță, Alexandru Gal, Shuang Cang, Hongnian Yu, Vasile Bratu, Mingcong Deng, Numerical model for dynamic behavior of the 3D contact problems with friction, Computational Material Science, volume 94, november 2014, pp 285-291.

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UNIVERSITARE DE DOCTORAT 2024-2025  
SDSI - Domeniul *INGINERIA MATERIALELOR***

**Prof. univ. dr. ing. ION Rodica - Mariana**

**PROPUNERI**

**1. Micro si nanomateriale pentru aplicatii medicale**

**Obiective**

1. Micro si nanomateriale: sinteza si caracterizare
2. Testarea proprietatilor fotofizice si fotochimice a acestora
3. Testarea materialelor obtinute pe sisteme in vitro



#### 4. Sisteme de incapsulare si formulari specifice

##### **Bibliografie**

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7. RM Ion, in “New trends in photodynamic therapy-review, in „Aspects of Photodynamic medicine” *Biomedicine Engineering Acta*”, 3/2008, pp.123-159, H.Podbielska, A.Sieron, W.Strek, (Eds.), Wroclaw, Poland, 2008 (English)

#### 2. Materiale si metode de investigare pentru diagnoza si tratamentele de consolidare/restaurare in patrimonial cultural din Romania.

##### **Obiective:**

1. Evaluarea materialelor prelevate din monumente istorice
2. Caracterizarea microstructurală, structurala si compozitionala a materialelor prelevate
3. Influenta factorilor de mediu asupra materialelor suport
4. Elaborarea de materiale in vederea restaurării si caracterizarea si testarea acestora

##### **Bibliografie**

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#### 3. Materiale membranare cu extracte de plante pentru aplicatii biomedicale si de protectia mediului.

##### **Obiective**

1. Preparare si caracterizarea unor membrane artificiale
2. Aspecte cinetice si mecanistice de retentie a diversilor poluanti din apele reziduale
3. Tehnici de caracterizarea structurală si compozițională a membranelor si extractelor de plante



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4. Tehnologii neconventionale (fotocatalitice) de degradare a poluantilor organici din apele reziduale.

### ***Bibliografie***

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