



**IAEA**

International Atomic Energy Agency

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**PROGRAMME OF COORDINATED RESEARCH ACTIVITIES**

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**PROPOSAL FOR RESEARCH AGREEMENT**

**PLEASE SEND YOUR PROPOSAL FOR RESEARCH AGREEMENT TO [research.contracts@iaea.org](mailto:research.contracts@iaea.org)  
ONLY DULY FILLED AND SIGNED PROPOSALS WILL BE PROCESSED.**

<b>1. CODE OF THE COORDINATED RESEARCH PROJECT (CRP) UNDER WHICH THE RESEARCH AGREEMENT SHOULD BE PLACED:</b> F41033	
<b>2. TITLE OF THE COORDINATED RESEARCH PROJECT (CRP) UNDER WHICH THE RESEARCH AGREEMENT SHOULD BE PLACED:</b> Recommended Input Parameter Library (RIPL) for Fission Cross Section Calculations	
<b>3. TITLE OF THE PROPOSED RESEARCH AGREEMENT (should reflect the proposed research work):</b> Nuclear masses, deformations & fission barriers in actinides nuclei within macroscopic - microscopic approach	
<b>4. CONTRACTING INSTITUTION:</b> (The contracting institution can ONLY be an institution with independent legal personality)  Inst. Name: National Centre for Nuclear Research  Street: Andrzejka Sołtana P.O. Box: 7 Postal Code: 05-400 City : Swierk Region/District : Otwock/Warsaw Country: Poland Tel.: +48 22 27 31 001 Fax: +48 22 77 93 481 Email: <a href="mailto:ncbj@ncbj.gov.pl">ncbj@ncbj.gov.pl</a>	<b>5. IMPLEMENTING INSTITUTION:</b> (Where the research is performed - can be the contracting institution or a sub-institution, a branch of the main institution or a laboratory) If not the contracting institute, please provide:  Inst. Name:  Street: P.O. Box: Postal Code: City : Region/District : Country: Tel.: Fax: Email:
<b>6. SUMMARY OF PROPOSED RESEARCH:</b> We are planning to determine with high accuracy ground-state and saddle-point shapes and masses of even-even, odd-even, even-odd and odd-odd actinides nuclei. We are going to provide also the information about the second fission barriers and the second superdeformed minima in these nuclei. The puzzle of the hyperdeformation will be also discussed. Our study will be performed within the microscopic-macroscopic method. The Strutinsky shell and pairing correction will be calculated for the deformed Woods-Saxon single-particle potential and the Yukawa-plus-exponential energy will be taken as a smooth part. We plan to use parameters of the model that were fitted previously to this region of nuclei. For systems with odd proton or neutron (or both), a standard treatment is that of blocking or quasi-particle method.	