

**ANEXA V. Descrierea pachetelor de lucru (Work package description (for each WP mentioned in ANNEX 4))**

<b>WP no.</b>	<b>1</b>					
<b>WP title</b>	<b>COMPUTER LIBRARY DEVOTED TO NUMERICAL, SYMBOLIC COMPUTATION AND ALGEBRAIC PROGRAMING METHODS IN SPACE SCIENCE</b>					
<b>Involved partners</b>	<b>CO</b>	<b>P1</b>	<b>P2</b>	<b>...</b>	<b>...</b>	<b>Total</b>
<b>Person-months</b>	<b>39</b>	<b>4</b>	<b>4</b>			<b>47</b>
<b>Start month</b>	<b>Month 4</b>					
<b>End month</b>	<b>Month 34</b>					
<b>Objectives</b>						
<ul style="list-style-type: none"> <li>- Study of alternative gravity theories for non-standard cosmologies using computational methods</li> <li>- Investigations on the flow equations with computational methods</li> <li>- Identifying possible effects of different cosmological models on the astrophysical measurements in space</li> <li>- Building all the routines and programes obtained in one or more special library for their use.</li> </ul>						
<b>Description of work (possibility broken down into tasks) and role of participants</b>						
<p><b>Task 1.1</b> – Building and processing new routines for different types of cosmological models using algebraic, numerical and graphical facilities. (CO)</p> <p><b>Task 1.2</b> - Investigations on the flow equations by building new programs for their numerical, computer algebra solving. Testing the accuracy and convergence of routines and testing them on flow eqs. In plasmas and turbulent media. (CO)</p> <p><b>Task 1.3</b> - Identifying possible effects of different cosmological models on the astrophysical measurements in space. (CO)</p> <p><b>Task 1.4</b> – Testing, running and optimizing of different types of routines obtained in view of their packing in one or more dedicated libraries (including User Guide texts). (CO,P1,P2)</p>						
<b>Deliverables (brief description and month of delivery)</b>						
<p><b>D.1.1:</b> Computer library with new routines for different types of cosmological models. Month 12</p> <p><b>D.1.2:</b> Software for investigating the flow equations. Month 24</p> <p><b>D.1.3:</b> Paper in ISI journal on the possible effects of different cosmological models on the astrophysical measurements in space. Month 28</p> <p><b>D.1.4:</b> User Guide text for testing, running and optimizing the programming methods in space science. Month 31</p>						

<b>WP no.</b>	<b>2</b>					
<b>WP title</b>	<b>ANALYTICAL AND NUMERICAL MODELS FOR REMOTE SOLAR AND SPACE PLASMA DIAGNOSTICS</b>					
<b>Involved partners</b>	<b>CO</b>	<b>P1</b>	<b>P2</b>	<b>...</b>	<b>...</b>	<b>Total</b>
<b>Person-months</b>	<b>2</b>	<b>13</b>	<b>34</b>			<b>49</b>
<b>Start month</b>	<b>Month 6</b>					
<b>End month</b>	<b>Month 34</b>					
<b>Objectives</b>						
<ul style="list-style-type: none"> <li>• assign to each magnetic structure a corresponding effective filter, i.e. a map of the specific physical parameters to a behavior in the frequency domain. This can later be encapsulated by a specific component of a dedicated software library</li> <li>• combine observational and theoretical efforts in investigating the multi-scale properties of the solar corona and diagnostics using waves and oscillations in solar plasmas</li> <li>• refine deterministic reconnection models by considering stochastic behavior of magnetic fields</li> <li>• study the effect of stochastic magnetic field on the radiation emitted by a plasma</li> </ul>						
<b>Description of work (possibility broken down into tasks) and role of participants</b>						
<b>Task 2.1:</b> Defining the magnetic structures as computer/programming entities. (P2)						
<b>Task 2.2:</b> Impulsively driven waves and diagnostics of the driver and eigenoscillations. (P2)						
<b>Task 2.3:</b> Defining the multiscale behaviour of the solar magnetic field. (CO, P2)						
<b>Task 2.4:</b> Study the effect of a stochastic magnetic field on plasma radiation. (P1,P2)						
<b>Deliverables (brief description and month of delivery)</b>						
<b>D.2.1:</b> Report on the transfer-function formalism for the information transmission through solar magnetic structures (analytical and numerical). Month 10						
<b>D.2.2:</b> Report on diagnostics of drivers on magnetic structures based on their eigenoscillations. Month 15						
<b>D.2.3:</b> Paper on a stochastic reconnection model suited to explain a wide variety of astrophysical events, such as solar impulsive events or the IntraDay Variability in Active Galactic Nuclei. Month 23						
<b>D.2.4:</b> Paper on theoretical assessment of the effect of a magnetic field on the radiation emitted by a plasma. Month 32						

<b>WP no.</b>	<b>3</b>					
<b>WP title</b>	<b>SEMI-ANALYTICAL METHODS IN STUDYING THE STABILITY OF CONSTRAINED SPACE FLIGHT DYNAMICS</b>					
<b>Involved partners</b>	<b>CO</b>	<b>P1</b>	<b>P2</b>	<b>...</b>	<b>...</b>	<b>Total</b>
<b>Person-months</b>	<b>12</b>	<b>34</b>	<b>2</b>			<b>48</b>
<b>Start month</b>	<b>Month 15</b>					
<b>End month</b>	<b>Month 34</b>					
<b>Objectives</b>						
<ul style="list-style-type: none"> <li>- Extension of the Draper Semianalytical Satellite Theory (DSST) in studing the stability of spacecraft orbits.</li> <li>- Proposal of new types of measurements in space experiments based on the study of planet and satellite motions in post-newtonian approximation.</li> <li>- Development of specific application of the stability theory in the study of phenomena in turbulent atmosphere.</li> </ul>						
<b>Description of work (possibility broken down into tasks) and role of participants</b>						
<p><b>Task 3.1:</b> Development of an algorithm suitable for studying the satellite stability in presence of small perturbative forces (P1 in cooperation with CS Romania).</p> <p><b>Task 3.2:</b> Semi-analytical methods in studying chaotic and regular orbits in turbulent atmosphere. Transfer of methods for the chaos control in plasma physics to turbulent media (P1 and P2)</p> <p><b>Task 3.3:</b> Studies on the motion of objets (including geodesics) orbiting around massive masses (Earth, Sun, other massive stellar objects) and identification of possible effects of alternative gravity theories using PNA and computational new methods (CO).</p> <p><b>Task 3.4:</b> Symmetry method and similarity solutions for nonlinear evolutionary equation appearing in space dynamics (CO and P1).</p>						
<b>Deliverables (brief description and month of delivery)</b>						
<p><b>D.3.1:</b> Software package on the satellite stability in the presence of various perturbations. Month 34</p> <p><b>D.3.2:</b> Report on chaos control of the dynamics of turbulent media. Month 16</p> <p><b>D.3.3:</b> Three papers in ISI journals on stability criteria for satellite orbits and for dynamics in turbulent atmosphere. Months 25-34</p>						

<b>WP no.</b>	<b>4</b>					
<b>WP title</b>	<b>DISSEMINATION, COMMUNICATION, TRAINING AND EDUCATION</b>					
<b>Involved partners</b>	<b>CO</b>	<b>P1</b>	<b>P2</b>	<b>...</b>	<b>...</b>	<b>Total</b>
<b>Person-months</b>	<b>20</b>	<b>10</b>	<b>20</b>			<b>50</b>
<b>Start month</b>	<b>Month 6</b>					
<b>End month</b>	<b>Month 30</b>					
<b>Objectives</b>						
<ul style="list-style-type: none"> <li>• Promote knowledge on space science and on ESA and ROSA Programs</li> <li>• Encouraging researchers to participate in international activities, programs and conferences,</li> <li>• Publishing research results.</li> <li>• Establish high-level collaborative environment within the COMISIS participants.</li> </ul>						
<b>Description of work (possibility broken down into tasks) and role of participants</b>						
<p><b>Task 4.1:</b> Organization of public events for promoting space science, its social and economic importance, as well as the ESA and ROSA Programs. (Month 5 - P1; Month 11 - CO, Month 23 - P2).</p> <p><b>Task 4.2:</b> Spreading information on the main conferences, and project calls on Space science among the COMISIS Participants. (CO).</p> <p><b>Task 4.3:</b> Periodical meetings of the research teams for presenting up-to-date scientific results in view of their publication. (CO, P1, P2 - Months 5, 11, 17, 23, 29).</p> <p><b>Task 4.4:</b> Internal seminars within each research team and periodic video-conferences among partner institutions. (CO, P1, P2).</p>						
<b>Deliverables (brief description and month of delivery)</b>						
<p><b>D.4.1:</b> Leaflets, posters and other printed materials at the public events. Months 12, 24, 36.</p> <p><b>D.4.2:</b> Booklet specially addressed to socio-economic environment (public and private institutions) on the impact of the COMISIS Project results – Month 32</p> <p><b>D.4.3:</b> Building the COMISIS web-site with information on important space science events. Months 3 – 36.</p> <p><b>D.4.4:</b> Hard copies of the scientific publications and links to the project web-site - Months 12, 24, 26</p> <p><b>D.4.5:</b> Programs and reports of the internal seminars and video-conferences – Months 3 – 36.</p>						

<b>WP no.</b>	5					
<b>WP title</b>	MANAGEMENT / ADMINISTRATION					
<b>Involved partners</b>	CO	P1	P2	...	...	<b>Total</b>
<b>Person-months</b>	16	4	4			24
<b>Start month</b>	month 1					
<b>End month</b>	month 36					
<b>Objectives :</b>						
<ul style="list-style-type: none"> <li>• ensure coordination of activities within the project</li> <li>• managing the research activities of the project</li> <li>• ensure the intra consortium and external relationship of the team working within the project</li> <li>• managing the equipment necessary for the research and administration activities</li> <li>• managing the Project budget</li> </ul>						
<b>Description of work (possibility broken down into tasks) and role of participants</b>						
<p>Within this work package will be ensure the management of the project during its development on fthree years. This activity is subdivided in six tasks that will manage the entire administrative domain.</p> <p><b>Task 5.1: Nomination of the administration structure of the project</b>  In the first phase of the project, the Project Manager (PM) will ensure the nomination by the CO rector of the administrative structure of the project.</p> <p><b>Task 5.2: Rules and procedures for the project activities</b>  Completion of the staff involved in research and educational activities. Establish rules and procedure for inclusion in the team. (CO, P1, P2).</p> <p><b>Task 5.3: Coordination of activities within the project</b>  Management of project activities:  - ensure communication among research team, Steering Committee. (CO, P1, P2).  - organization of workshops. (CO, P2).  - conference organization. (CO, P1)</p> <p><b>Task 5.4: Managing the equipment and software necessary</b>  To provide the resources necessary for the smooth running of the project will be implemented a coordinate system. This system will be also used for managing the database that will be created within the project. CO.</p> <p><b>Task 5.5: Intra consortium and external relationship</b>  Internal and external communication will be provided by the PM and the representatives of the each partner. (CO, P1, P2).</p> <p><b>Task 5.6: Administration of the COMISIS budget</b>  The accounting will be provided by the specific department of the University of Timisoara. Every month will provide a statement of the budget situation in the monthly Steering Committee. (CO).</p>						
<b>Deliverables (brief description and month of delivery)</b>						
<p><b>D 5.1:</b> Decision on the administrative structure of the project – Month 1</p> <p><b>D 5.2:</b> Publication of the rules and procedures– Month 2</p> <p><b>D 5.3:</b> Adoption of COMISIS initial work program (Month 1) and of yearly updated work program (Months 13 and 25)</p> <p><b>D 5.4:</b> Yearly mid-term reports and final report - Months 12, 24, 36</p>						