List of Publications

Citation Summary from INSPIRE:

Number of papers	21
Citations	243
h-index	7
Citations/paper (avg)	11.6

First-authored papers:

1. Maximally local two-nucleon interactions at fourth order in delta-less chiral effective field theory
   Rahul Somasundaram, Joel E. Lynn, Lukas Huth, Achim Schwenk, Ingo Tews
   e-Print: 2306.13579 [nucl-th]

2. Perturbative QCD and the Neutron Star Equation of State
   Rahul Somasundaram, Ingo Tews, Jérôme Margueron
   e-Print: 2204.14039 [nucl-th]
   DOI: 10.1103/PhysRevC.107.L052801 (publication)
   Published in: Phys.Rev.C 107 (2023) 5, L052801

3. Investigating signatures of phase transitions in neutron-star cores
   Rahul Somasundaram, Ingo Tews, Jérôme Margueron
   e-Print: 2112.08157 [nucl-th]
   DOI: 10.1103/PhysRevC.107.025801 (publication)
   Published in: Phys.Rev.C 107 (2023) 2, 025801

4. Comparison of different relativistic models applied to dense nuclear matter
   Rahul Somasundaram, Jérôme Margueron, Guy Chanfray, Hubert Hansen
   e-Print: 2109.05374 [nucl-th]
   DOI: 10.1140/epja/s10050-022-00733-7
   Published in: Eur.Phys.J.A 58 (2022) 5, 84

5. Impact of massive neutron star radii on the nature of phase transitions in dense matter
   Rahul Somasundaram, Jérôme Margueron
   e-Print: 2104.13612 [astro-ph.HE]
   DOI: 10.1209/0295-5075/ac63de
   Published in: EPL 138 (2022) 1, 14002

6. Constraints on the nuclear symmetry energy from asymmetric-matter calculations with chiral NN and 3N interactions
   Rahul Somasundaram, Christian Drischler, Ingo Tews, Jérôme Margueron

e-Print: 2009.04737 [nucl-th]
DOI: 10.1103/PhysRevC.103.045803
Published in: Phys.Rev.C 103 (2021) 4, 045803

Co-authored papers:

7. Measuring Neutron Star Radius with second and third generation Gravitational Wave Detector Networks
   Ananya Bandopadhyay, Keisi Kacanja, **Rahul Somasundaram**, Alexander H. Nitz, Duncan A. Brown
   e-Print: 2402.05056 [astro-ph.HE]

8. An overview of existing and new nuclear and astrophysical constraints on the equation of state of neutron-rich dense matter
   Hauke Koehn, Henrik Rose, Peter T.H. Pang, **Rahul Somasundaram**, Brendan T. Reed et al.
   e-Print: 2402.04172 [astro-ph.HE]

9. Equation of state at neutron-star densities and beyond from perturbative QCD
   Oleg Komoltsev, **Rahul Somasundaram**, Tyler Gorda, Aleksi Kurkela, Jerome Margueron, Ingo Tews
   e-Print: 2312.14127 [nucl-th]

10. What can we learn about the unstable equation-of-state branch from neutron-star mergers?
    Maximiliano Ujevic, **Rahul Somasundaram**, Tim Dietrich, Jerome Margueron, Ingo Tews
    e-Print: 2311.04809 [astro-ph.HE]

11. Probing Quarkyonic Matter in Neutron Stars with the Bayesian Nuclear-Physics Multi-Messenger Astrophysics Framework
    Peter T.H. Pang, Lars Sivertsen, **Rahul Somasundaram**, Tim Dietrich, Srimoyee Sen, Ingo Tews, Michael Coughlin, Chris Van Den Broeck
    e-Print: 2308.15067 [nucl-th]

12. Relativistic Hartree-Fock Chiral Lagrangians with confinement, nucleon finite size and short-range effects
    Mohamad Chamseddine, Jérôme Margueron, Guy Chanfray, Hubert Hansen, **Rahul Somasundaram**
    e-Print: 2304.01817 [nucl-th]
    DOI: 10.1140/epja/s10050-023-01089-2
    Published in: Eur.Phys.J.A 59 (2023) 8, 177

13. Impact of O4 future detection on the determination of the dense matter equations of state
    Jean-François Coupechoux, Roberto Chierici, Hubert Hansen, Jérôme Margueron, **Rahul Somasundaram** et al.
    e-Print: 2302.04147 [astro-ph.HE]
    DOI: 10.1103/PhysRevD.107.124006 (publication)
    Published in: Phys.Rev.D 107 (2023) 12, 124006

14. Nuclear incompressibility and speed of sound in uniform matter and finite nuclei
    Guilherme Grams, **Rahul Somasundaram**, Jerome Margueron, Elias Khan
    e-Print: 2207.01884 [nucl-th]
    DOI: 10.1103/PhysRevC.106.044305 (publication)
    Published in: Phys.Rev.C 106 (2022) 4, 044305

15. Neutron star crust properties: comparison between the compressible liquid-drop model and the extended Thomas-Fermi approach
    Guilherme Grams, Jerome Margueron, **Rahul Somasundaram**, Nicolas Chamel, Stephane Goriely
    e-Print: 2205.15091 [nucl-th]
    DOI: 10.1088/1742-6596/2340/1/012030
    Published in: J.Phys.Conf.Ser. 2340 (2022) 1, 012030

16. NMMA: A nuclear-physics and multi-messenger astrophysics framework to analyze binary neutron star mergers
    Peter T.H. Pang, Tim Dietrich, Michael W. Coughlin, Mattia Bulla, Ingo Tews et al. (including **Rahul Somasundaram**)
    e-Print: 2205.08513 [astro-ph.HE]
    DOI: 10.1038/s41467-023-43932-6
    Published in: Nature Commun. 14 (2023) 1, 8352

17. Confronting a set of Skyrme and chiral EFT predictions for the crust of neutron stars: On the origin of uncertainties in model predictions
    Guilherme Grams, Jérôme Margueron, **Rahul Somasundaram**, Sanjay Reddy
    e-Print: 2203.11645 [nucl-th]
    DOI: 10.1140/epja/s10050-022-00706-w
    Published in: Eur.Phys.J.A 58 (2022) 3, 56

18. Properties of the neutron star crust: Quantifying and correlating uncertainties with improved nuclear physics
    Guilherme Grams, **Rahul Somasundaram**, Jérôme Margueron, Sanjay Reddy
    e-Print: 2110.00441 [nucl-th]
    DOI: 10.1103/PhysRevC.105.035806 (publication)
    Published in: Phys.Rev.C 105 (2022) 3, 035806

19. Properties of Neutron Star Crust with Improved Nuclear Physics: Impact of Chiral EFT Interactions and Experimental Nuclear Masses
    Guilherme Grams, Jérôme Margueron, **Rahul Somasundaram**, Sanjay Reddy
    e-Print: 2109.11857 [nucl-th]
    DOI: 10.1007/s00601-021-01697-y
    Published in: Few Body Syst. 62 (2021) 4, 116

20. New insights into sub-barrier fusion of 28Si + 100Mo
    A.M. Stefanini, G. Montagnoli, M. D'Andrea, M. Giacomin, C. Dehman et al. (including **R. Somasundaram**)
    DOI: 10.1088/1361-6471/abe8e2
    Published in: J.Phys.G 48 (2021) 5, 055101

21. Exotic hadrons in the $\Lambda_b \rightarrow J/\psi\ \Phi\ \Lambda$ decay
    Volodymyr Magas, Àngels Ramos, **Rahul Somasundaram**, Júlia Tena Vida
    e-Print: 2004.01541 [hep-ph]
    DOI: 10.1103/PhysRevD.102.054027
    Published in: Phys.Rev.D 102 (2020) 5, 054027

Chapters in Books:

1. Nuclear Theory in the Age of Multimessenger Astrophysics
   Chapter title: Inference of Microscopic Nuclear Interactions and the Equation of State from Multi-Messenger Astrophysics
   Rahul Somasundaram and Ingo Tews.