Stanford

Tanmoy Chattopadhyay

Postdoctoral Research Fellow, Physics

Bio

STANFORD ADVISORS

- Steven Allen, Postdoctoral Faculty Sponsor

Research & Scholarship

CURRENT RESEARCH AND SCHOLARLY INTERESTS

1. X-ray astronomical instrumentation - Scintillators, Si-Photomultipliers, CZTs, X-ray CCDs, X-ray Hybrid CMOS detectors

2. Hard X-ray polarimetry and associated instrumentation

3. AstroSat CZT Imager - polarimetry of pulsars, black hole XRBs, Gamma Ray Bursts

4. X-ray lobster optic - Schmidt type

Publications

PUBLICATIONS

- **Spectropolarimetric analysis of prompt emission of GRB 160325A: jet with evolving environment of internal shocks** *MONTHLY NOTICES OF THE ROYAL ASTRONOMICAL SOCIETY*
  Sharma, V., Iyyani, S., Bhattacharya, D., Chattopadhyay, T., Vadawale, S. V., Bhalerao, V. B.
  2020; 493 (4): 5218–32

- **Time-varying Polarized Gamma-Rays from GRB 160821A: Evidence for Ordered Magnetic Fields** *ASTROPHYSICAL JOURNAL LETTERS*
  Sharma, V., Iyyani, S., Bhattacharya, D., Chattopadhyay, T., Rao, A. R., Aarthy, E., Vadawale, S. V., Mithun, N. S., Bhalerao, V. B., Ryde, F., Pe'er, A.
  2019; 882 (1)

- **AstroSat-CZTI Detection of Variable Prompt Emission Polarization in GRB 171010A** *ASTROPHYSICAL JOURNAL*
  Chand, V., Chattopadhyay, T., Oganesyan, G., Rao, A. R., Vadawale, S. V., Bhattacharya, D., Bhalerao, V. B., Misra, K.
  2019; 874 (1)

- **Prompt emission polarimetry of Gamma ray bursts with ASTROSAT CZT-imager** *The Astrophysical Journal*
  Chattopadhyay, T., et al
  2019; 884 (2)

- **Flight Camera Package Design, Calibration, and Performance for the Water Recovery X-ray Rocket Mission**
  Wages, M., Hull, S. V., Falcone, A. D., Anderson, T. B., McQuaide, M., Bray, E., Chattopadhyay, T., Burrows, D. N., Buntic, L., McEntaffer, R. L., Miles, D. M., Tutt, J. H., Schultz, et al
  SPIE-INT SOC OPTICAL ENGINEERING.2019

- **US Contributions to the Athena Wide Field Imager**
  Burrows, D. N., Allen, S., Bautz, M., Bulbul, E., Chattopadhyay, T., Erdley, J., Falcone, A. D., Grant, C. E., Herrmann, S., Hornschemeier, A., Kelly, D., Kennea, J., Kraft, et al

SPIE-INT SOC OPTICAL ENGINEERING.2019

- **Development of position sensitive detector module using scintillator and Si photomultiplier for hard x-ray imaging and spectroscopy** *JOURNAL OF ASTRONOMICAL TELESCOPES INSTRUMENTS AND SYSTEMS*

  Goyal, S. K., Naik, A. P., Mithun, N. S., Vadawale, S. V., Nagrani, N., Madhvi, S., Tiwari, N. K., Ladiya, T., Patel, A. R., Adalja, H. K., Chattopadhyay, T., Shanmugam, M., Auknoor, et al

  2019; 5 (1)

- **Violation of Synchrotron Line of Death by the Highly Polarized GRB 160802A** *ASTROPHYSICAL JOURNAL*

  Chand, V., Chattopadhyay, T., Iyyani, S., Basak, R., Aarthy, E., Rao, A. R., Vadawale, S. V., Bhattacharya, D., Bhalerao, V. B.

  2018; 862 (2)

- **Characterizing subpixel spatial resolution of a hybrid CMOS detector** *JOURNAL OF ASTRONOMICAL TELESCOPES INSTRUMENTS AND SYSTEMS*

  Bray, E., Falcone, A., Wages, M., Chattopadhyay, T., Burrows, D. N.

  2018; 4 (3)

- **BlackCAT CubeSat: A Soft X-ray Sky Monitor, Transient Finder, and Burst Detector for High-energy and Multimessenger Astrophysics**

  Chattopadhyay, T., Falcone, A. D., Burrows, D. N., Fox, D. B., Palmer, D., DenHerder, J. W., Nikzad, S., Nakazawa, K.

  SPIE-INT SOC OPTICAL ENGINEERING.2018

- **X-ray Hybrid CMOS Detectors: Recent Development and Characterization Progress**

  Chattopadhyay, T., Falcone, A. D., Burrows, D. N., Hull, S., Bray, E., Wages, M., Macquaide, M., Buntic, L., Crum, R., O'Dell, J., Anderson, T., DenHerder, J. W., Nikzad, et al

  SPIE-INT SOC OPTICAL ENGINEERING.2018

- **Phase-resolved X-ray polarimetry of the Crab pulsar with the AstroSat CZT Imager** *NATURE ASTRONOMY*

  Vadawale, S. V., Chattopadhyay, T., Mithun, N. S., Rao, A. R., Bhattacharya, D., Vibhute, A., Bhalerao, V. B., Dewangan, G. C., Misra, R., Paul, B., Basu, A., Joshi, B. C., Sreekumar, et al

  2018; 2 (1): 50–55

- **Surprise in simplicity: an unusual spectral evolution of a single pulse GRB 151006A** *MONTHLY NOTICES OF THE ROYAL ASTRONOMICAL SOCIETY*

  Basak, R., Iyyani, S., Chand, V., Chattopadhyay, T., Bhattacharya, D., Rao, A. R., Vadawale, S. V.

  2017; 472 (1): 891–903

- **Recent X-ray hybrid CMOS detector developments and measurements**

  Hull, S. V., Falcone, A. D., Burrows, D. N., Wages, M., Chattopadhyay, T., McQuaide, M., Bray, E., Kern, M., Siegmund, O. H.

  SPIE-INT SOC OPTICAL ENGINEERING.2017

- **An introduction to the water recovery x-ray rocket**

  Miles, D. M., McEntaffer, R. L., Schultz, T. B., Donovan, B. D., Tutt, J., Yastishock, D., Steiner, T., Hillman, C. R., McCoy, J. A., Wages, M., Hull, S., Falcone, A., Burrows, et al

  SPIE-INT SOC OPTICAL ENGINEERING.2017

- **ASTROSAT CZT IMAGER OBSERVATIONS OF GRB 151006A: TIMING, SPECTROSCOPY, AND POLARIZATION STUDY** *ASTROPHYSICAL JOURNAL*

  Rao, A. R., Chand, V., Hingar, M. K., Iyyani, S., Khanna, R., Kutty, A. K., Malkar, J. P., Paul, D., Bhalerao, V. B., Bhattacharya, D., Dewangan, G. C., Pawar, P., Vibhute, et al

  2016; 833 (1)

- **Development of a hard x-ray focal plane compton polarimeter: a compact polarimetric configuration with scintillators and Si photomultipliers** *EXPERIMENTAL ASTRONOMY*

  Chattopadhyay, T., Vadawale, S. V., Goyal, S. K., Mithun, N. S., Patel, A. R., Shukla, R., Ladiya, T., Shanmugam, M., Patel, V. R., Ubale, G. P.

  2016; 41 (1-2): 197–214

- **In-orbit performance of AstroSat CZTI**

  Vadawale, S. V., Rao, A. R., Bhattacharya, D., Bhalerao, V. B., Dewangan, G., Vibhute, A. M., Mithun, N. S., Chattopadhyay, T., Sreekumar, S., DenHerder, J. W., Takahashi, T., Bautz, M.

  SPIE-INT SOC OPTICAL ENGINEERING.2016

- **Line profile modelling for multi-pixel CZT detectors**

  Chattopadhyay, T., Vadawale, S. V., Rao, A. R., Bhattacharya, D., Mithun, N. S., Bhalerao, V., DenHerder, J. W., Takahashi, T., Bautz, M.

SPIE-INT SOC OPTICAL ENGINEERING.2016

- **Hard X-ray polarimetry with Astrosat-CZTI** *ASTRONOMY & ASTROPHYSICS*
  Vadawale, S. V., Chattopadhyay, T., Rao, A. R., Bhattacharya, D., Bhalerao, V. B., Vagshette, N., Pawar, P., Sreekumar, S.
  2015; 578

- **Prospects of hard X-ray polarimetry with Astrosat-CZTI** *EXPERIMENTAL ASTRONOMY*
  Chattopadhyay, T., Vadawale, S. V., Rao, A. R., Sreekumar, S., Bhattacharya, D.
  2014; 37 (3): 555–77

- **MEASUREMENT OF LOW ENERGY DETECTION EFFICIENCY OF A PLASTIC SCINTILLATOR: IMPLICATIONS ON THE LOWER ENERGY LIMIT AND SENSITIVITY OF A HARD X-RAY FOCAL PLANE COMPTON POLARIMETER** *ASTROPHYSICAL JOURNAL SUPPLEMENT SERIES*
  Chattopadhyay, T., Vadawale, S. V., Shanmugam, M., Goyal, S. K.
  2014; 212 (1)

- **Compton polarimeter as a focal plane detector for hard X-ray telescope: sensitivity estimation with Geant4 simulations** *EXPERIMENTAL ASTRONOMY*
  Chattopadhyay, T., Vadawale, S. V., Pendharkar, J.
  2013; 35 (3): 391–412

- **Prospects of Hard X-ray Polarimetry with Astrosat-CZTI**
  Vadawale, S. V., Chattopadhyay, T., Rao, A. R., IEEE
  IEEE.2013

- **A conceptual design of hard x-ray focal plane detector for simultaneous x-ray polarimetric, spectroscopic and timing measurements**
  Vadawale, S. V., Chattopadhyay, T., Pendharkar, J., Takahashi, T., Murray, S. S., DenHerder, J. W.
  SPIE-INT SOC OPTICAL ENGINEERING.2012