

CAMK Annual Meeting 2025

Modelling X-ray Spectrum for Compact Accreting Objects

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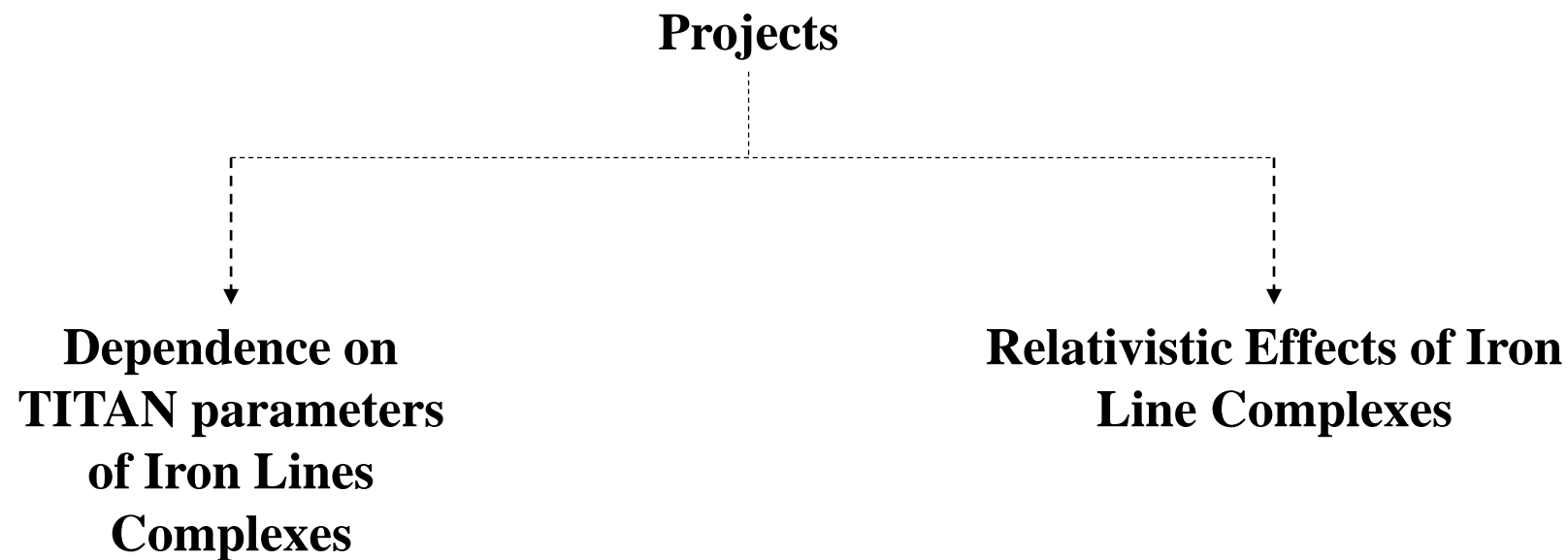
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Grant: OPUS Project, National Science Center.
Topic: ‘X-Ray Fingerprints of Accreting Compact Objects’
Number: 2021/41/B/S/ST9/04110



TITAN Photoionization Code



1. Dependence on TITAN parameters of Iron Lines Complexes
2. Relativistic Effects of Iron Line Complexes

- TITAN Photoionization Code:

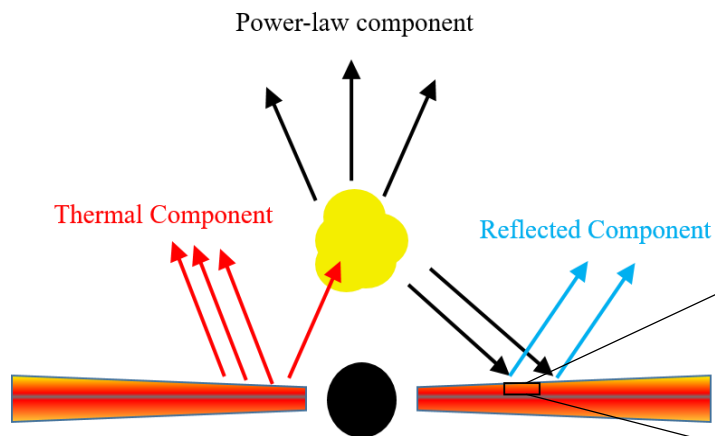


Fig 1: Schematic diagram of the AGN structure assumed in TiTAN.

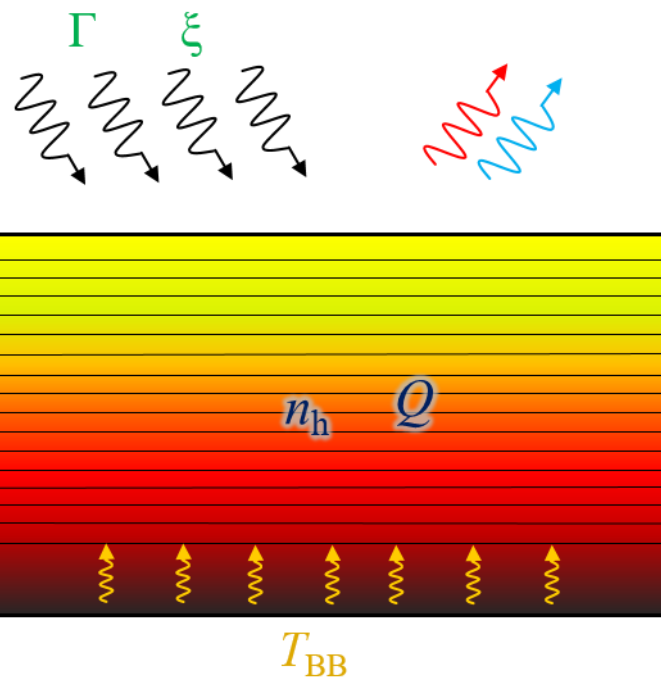


Fig 2: Schematic diagram of the AGN structure assumed in TiTAN.



Results

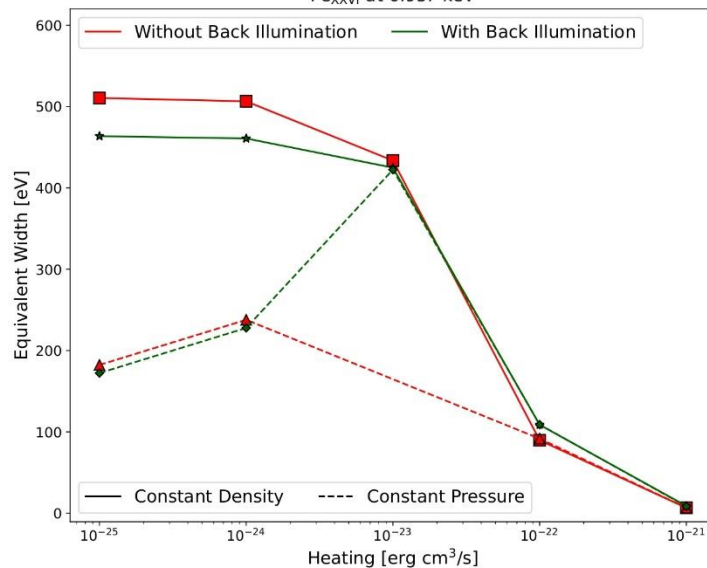
1. Dependence on TITAN parameters of Iron Lines Complexes

2. Relativistic Effects of Iron Line Complexes

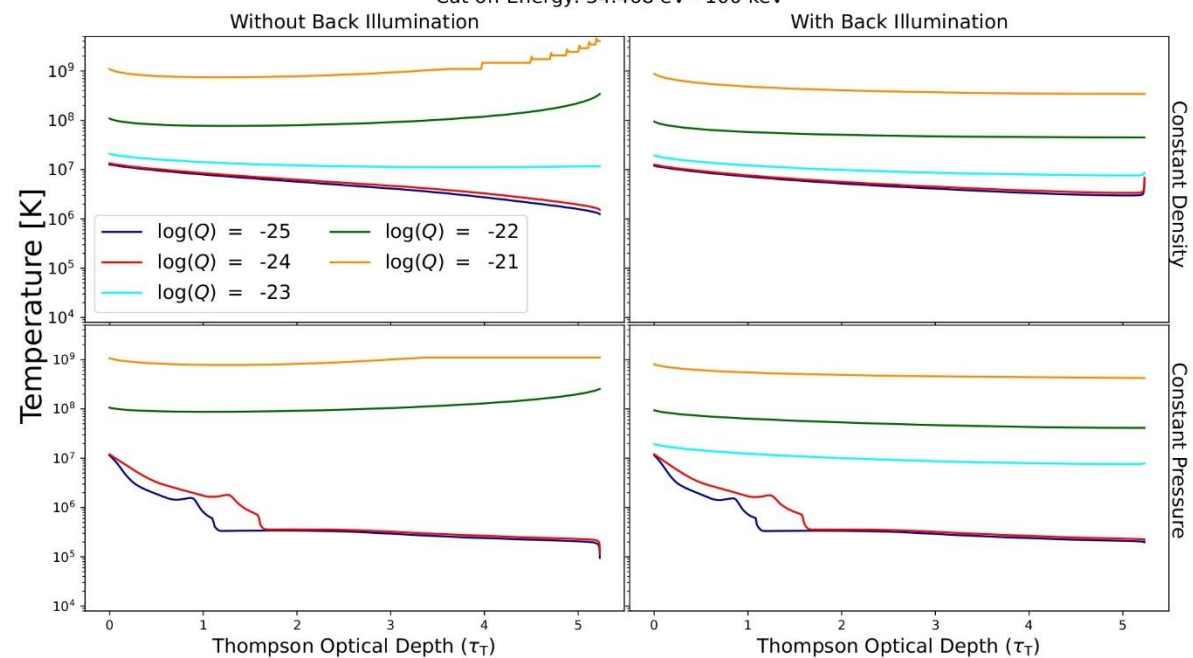


• Four Models models:

$n_H = 10^{15} \text{ cm}^{-3}$, $\xi = 10^4 \text{ erg cm/s}$, $N_H = 7.8789 \times 10^{24} \text{ cm}^{-2}$, $\Gamma = 1.99$, $T_{BB} = 0 \text{ K}$, 10^5 K
 Cut off Energy: 34.468 eV - 100 keV
 Fe_{XXVI} at 6.957 keV



$n_H = 10^{15} \text{ cm}^{-3}$, $\xi = 10^4 \text{ erg cm/s}$, $N_H = 7.8789 \times 10^{24} \text{ cm}^{-2}$, $\Gamma = 1.99$, $Q = * \text{ erg cm}^3/\text{s}$, $T_{BB} = 0 \text{ K}$, 10^5 K
 Cut off Energy: 34.468 eV - 100 keV

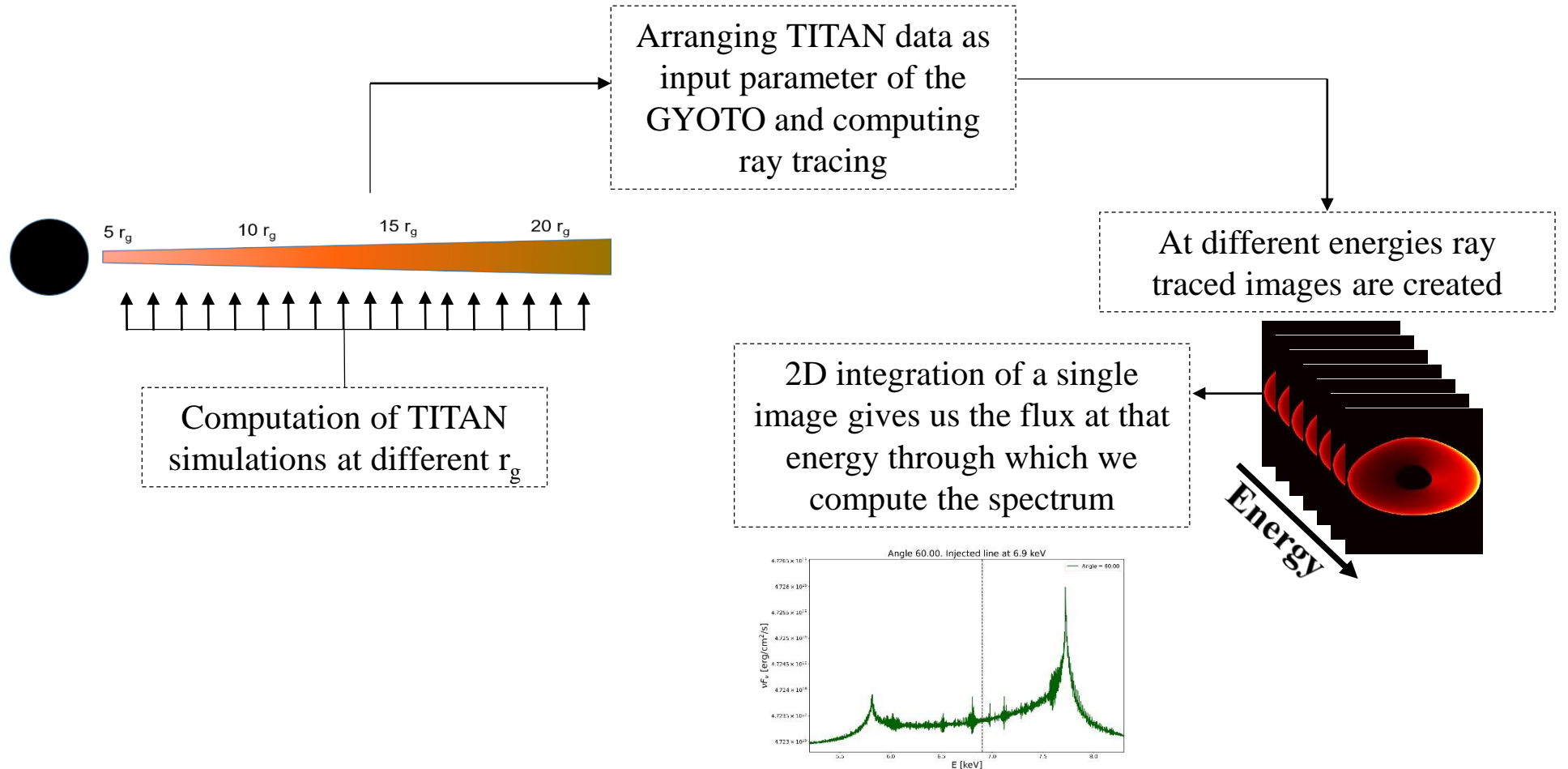




Setup of TITAN and GYOTO

1. Dependence on TITAN parameters of Iron Lines Complexes

2. Relativistic Effects of Iron Line Complexes

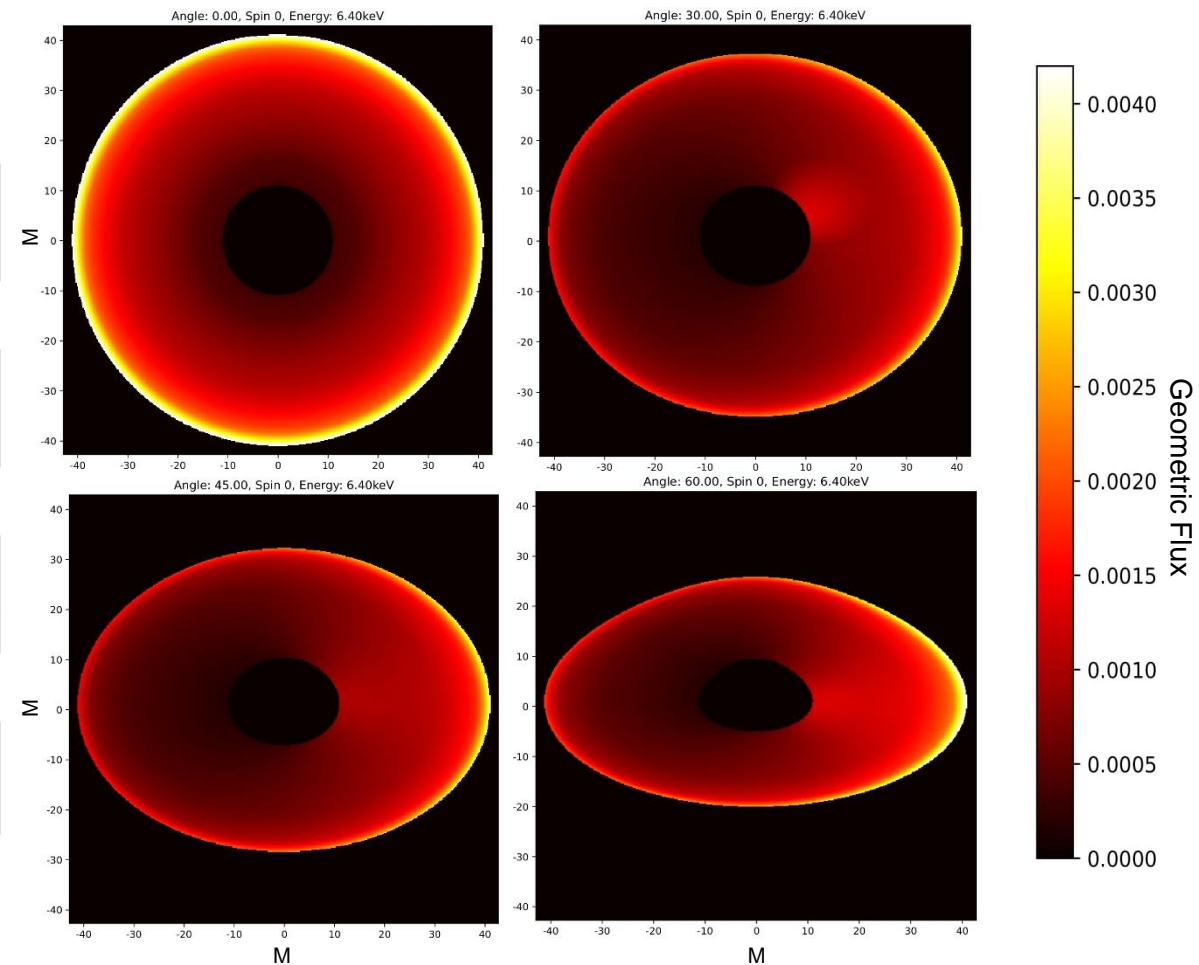
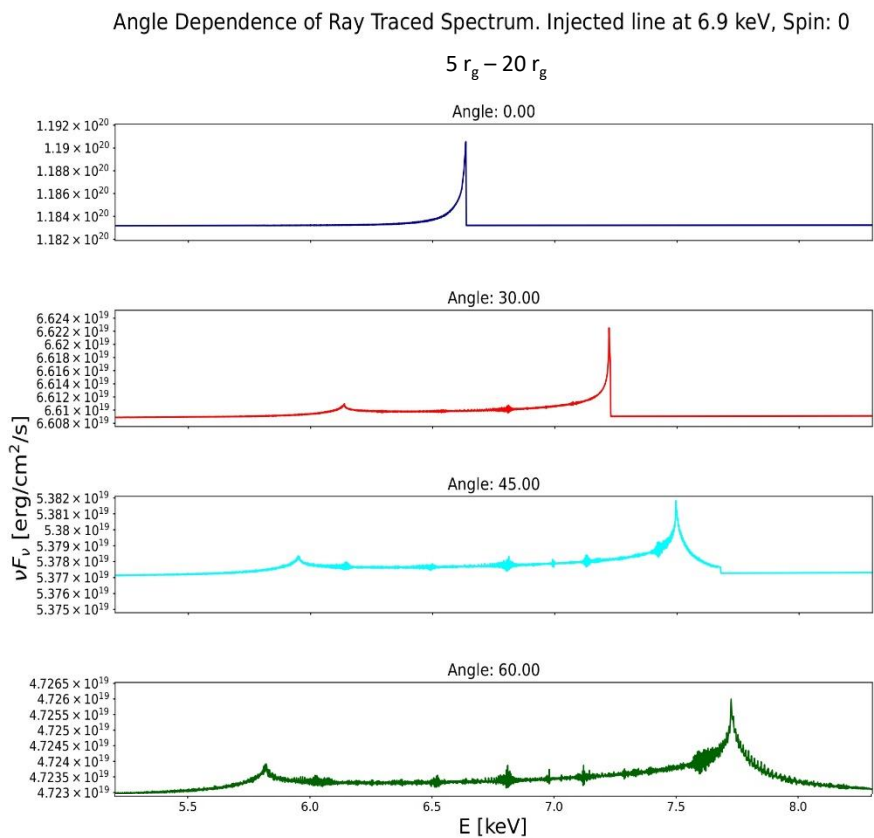




Preliminary Results for Single line test

1. Dependence on TITAN parameters of Iron Lines Complexes

2. Relativistic Effects of Iron Line Complexes



Thank You!