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High Energy Radiation From Black

ULTRA HIGH ENERGY RADIATION FROM A BLACK HOLE
ULTRA HIGH ENERGY RADIATION FROM A BLACK HOLE * John OLIENSIS High Energy Physics Division, Argonne National Laboratory, Argonne 60439, USA and Christopher T HILL Fermi National Laboratory, PO Box 500, Batavicl, IL 60510, USA Received 30 April 1984
High Energy Radiation from Black Holes
Sources of the highest energy radiations Very highest energy radiations, including ultra-high energy cosmic rays, made by black holes 1 stellar core collapse to a black hole (gamma ray burst) 2 rotating supermassive black holes 3 microquasars in galaxies Huge compactness found near accreting black holes, especially if rotating
5. Light-matter interactions: Blackbody radiation
energy density of a radiation field u( ) = 8 2kT/c3 Total energy radiated from a black body: ud uh-oh… the "ultraviolet catastrophe" Note: the units of this expression are correct Strictly speaking, u( ) is an energy density per unit bandwidth, such that the integral gives an answer with units of
Galactic black hole binaries: High-energy radiation

A model for the high-energy emission of Cyg X-1 AIP Conf Proc 410, 863 (1997); 101063/153990 Relativistic effects in the X-ray spectra of the black hole candidate GS 2023+338

High Energy Gamma Radiation Effects on Commercially ...

High Energy Gamma Radiation Effects on Commercially Available Silicon Carbide Power JFET Transistors by Meagan Nicole Black A thesis submitted to the Graduate Faculty of Auburn University in partial fulfillment of the requirements for the Degree of Master of Science Auburn, Alabama

Quantum-gravitational trans-Planckian radiation by a ...

radiation by a rotating black hole extreme high-energy radiation, an accretion disk, and energetic bipolar jets Although the significance of such an analysis would have been compro-mised by the long-standing non-renormalizability of gravity, it has recently

EFFECTS OF SPIN ON HIGH-ENERGY RADIATION FROM ...

rotational energy of black holes Although it is well established that jets produce radio emission at large radii (eg, Fender et al 2010), the high-energy (X-ray and γ-ray) radiation could originate much closer to the black hole, and so the contribution of jets to this radiation is less certain It has long been argued that inverse Compton

RADIATIVE PROCESSES IN HIGH ENERGY ASTROPHYSICS

the energy density of the emitted radiation is different if we are outside the source (at the distance D) or inside the source 163 We are inside a uniformly emitting shell Assume that a spherical shell of radius Remits uniformly a luminosity LIn this case the radiation energy density returns to be u= L 4πR2c (114)

Perovskite as a High-Energy radiation detector

when working as a High-Energy radiation detector and afterwards, analysing them in order to understand better its behaviour Furthermore, detecting single High-Energy photons with them has become a rm short-term objective I INTRODUCTION A perovskite is a semiconductor material with a band gap close to 1,5 eV and with an ionising energy of

Hawking radiation as tunneling for extremal and rotating ...

Journal of High Energy Physics Hawking radiation as tunneling for extremal and rotating black holes To cite this article: Marco Angheben et al JHEP05(2005)014 View the article online for updates and enhancements Related content - Hawking radiation enters the lab Closing in on black holes Fulvio Melia-On Quantum Microstates in the Near

Radiation Effects in Spacecraft and Aircraft

Environment on Radiation Effects-Cont'd There are orders of magnitude variations in: energy of the radiation, thickness of the devices, rad capability to penetrate materials, effects that can be induced, etc Thus, clear need to characterize the ionizing radiation in detail at both high and low energies

Thermal Radiation

The total emitted radiation (M λ) from a black body is proportional to the fourth power of its absolute temperature where σ is the Stefan-Boltzmann constant, 56697 x 10-8 W m-2 ºK -4! the amount of energy emitted by an object such as the Sun or the

The energy balance of planet earth - Harvard University

radiation at rates that depend on temperature Hot bodies (sun) emit more radiation at shorter wavelengths than cold bodies (earth) Emission rate=!T4 Road map to EPS 5 Lectures 3 and 4: Atmosphere Heat, Energy, Radiation Black Bodies, Planck Function, Stefan Boltzmann Law Planets

radiate on average at the Effective Temperature, to maintain

Environment, Energy Injection, High-Energy Radiation, and ...

Environment, Energy Injection, High-Energy Radiation, and Cosmological Use of Gamma-Ray Bursts Z G Dai Department of Astronomy, Nanjing University, Nanjing 210093, China Abstract The standard fireball shock model is successful at explaining the overall features of afterglows of some bursts, but it cannot fit the observed data quan-

Shedding Light on Black Holes - Stanford University

(a process called reconnection) releasing energy which accelerates nearby particles to ulltra-high energies (like a solar flare) These particles can collide with low energy photons (particles of light) and boost their energies, emitting enourmous amounts of energy from a hot corona around the black hole in the form of X-rays which we observe

Thermal Radiation - NASA

Thermal Radiation – relevance to high energy solar physics Optical, UV, EUV, X-rays Black-Body Radiation 6/16/2006 11:13 AM Brian Dennis - Thermal Radiation 10 Planck's Law Blackbody Brightness vs λ(or ν) and T B(T) – Planck function (erg s-1 cm-2 cm-1 steradian-1)

TOPIC # 7 The RADIATION LAWS

"ideal emitter" (or "Black body") (NOTE: the Earth isn't as ideal as a "black body" Black body (def): a hypothetical object that absorbs all of the radiation that strikes it It also emits radiation ("Energy flux") at a maximum rate for its given temperature LAW #2 BLACKBODY & …

Quasar

high luminosity, they can be detected at great distances and therefore are also among the most distant objects ever observed Astronomers generally believe that the accretion of hot gas into supermassive black holes at galactic centers provides the energy that powers quasars Quasars are useful probes of cosmology, the formation of black holes