RHIC
AGS
users' center

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Feature
Topic:

Iris Scanning at RHIC

What is Iris Scanning?

An iris scanner is a camera that takes a picture of the surface of the eye.

How Does Iris Scanning Work?

The eye is illuminated by light-emitting diodes that surround the camera. The diodes emit in the visible light spectrum. The scanner is NOT a laser-retinal scanner so there are no laser eye hazards. Iris identification uses standard video cameras — the same kind you would use to videotape your family — to take a picture of the iris of your eye. It does not use lasers and, therefore, has none of the inherent risks associated with lasers.

Where is Iris Scanning Done?

Initial enrollment is performed with an iris scanner in the Main Control Room (MCR). Iris scan readers are located in the experimental halls and counting houses at RHIC experimental areas. Once enrolled, you may use the local iris scanner in the counting house to obtain a key to enter the intersecting region (IR) in Controlled Access mode (note: Controlled Access mode is further explained in Collider-Accelerator User Training). Iris scanning technology has been used in this same way for the past two years in Building 912 by the NASA experimenters at AGS.

Why was Iris Scanning Installed?

The user community requested iris scanning. In prior years, when access to the IR during Controlled Access mode was required, users would have to travel to the Collider Accelerator's MCR --about a mile away-- be verified as trained and qualified, obtain an access key, go back to RHIC, enter the IR, and then return with the key back to the MCR. This new method saves time.

How Does Iris Scanning at RHIC Work?

With the iris scanner, the MCR operators use the technology remotely to determine if a person is qualified to enter under Controlled Access mode and to release a key locally. A local eye scanner releases a Controlled Access key to any trained and qualified individual locally at the entrance to a specific RHIC area placed under Controlled Access mode. That key opens the gate. Until that key is returned and the eye re-checked outside the gate, the access controls system automatically prevents the injection of beam into RHIC.

Benefit to Iris Scanning

Controlled Access mode is requested several times a week during RHIC runs for tuning/repair of detector equipment or accelerator components. The use of an iris scanner will save hours of MCR operator time and increase overall machine running time.

Is Iris Scanning Mandatory?

The requirement to use the iris scanner is voluntary. Any user/employee not wishing to participate in this may still go to MCR and obtain a key for Controlled Access mode. Alternatively, a user may request the iris scanning records be deleted from the database at the end of a running period. Forms for this request are available at enrollment. However, you must re-enroll prior to the next running period.

Confidentiality Issues

No video image of the iris is retained. Instead the eye pattern is converted into a 512 byte IrisCode® record. The IrisCode is hashed and encrypted as a security measure. The IrisCode and IrisCode® records are under the control of a single individual in the Collider-Accelerator Department's (C-AD) Access Controls Group and are behind the firewall. Backup CD-R copies are locked in a safe. There are no paper records. An IrisCode® record is based on 247 independent variables that are measured for each iris. Once the iris variables are measured, they are converted to a 512-byte template, which is the patented IrisCode® record. The IrisCode® record is immediately encrypted, and cannot be reverse-engineered into an image of the iris.

Since an IrisScan Record cannot be used to re-construct an image of an iris, the only personal information being stored by BNL is a person's name and guest/life number.

Legal Questions

If the Laboratory causes any injury, guests have full legal recourse. The Laboratory will not release IrisCode® records to any government agency if requested to do so.

Hours of Operation

The routine enrollment scanning for the iris reader will occur every day between the hours of 10:30 to 11:30 am and 1:30 to 2:30 pm. Each iris scan takes about two minutes to complete. Operators in MCR can register users on weekends and holidays.

For assistance, contact Ann Marie Luhrs at 631-344-7007. In Ann Marie's absence, contact John Maraviglia (x7343), Ray Karol (x5272), Asher Etkin (x4006), Joel Scott (x7520), Peter Cirnigliaro (x5636) Artie Piper (x7934) or Dave Passarello (x7277).

Safety Review of Iris Scanning

Brookhaven National Laboratory is concerned about health and safety of its employees and guests. The C-AD Radiation Safety Committee reviewed the eye scanner several years ago. That Committee has wide representation from BNL. The Committee's Chairman is Dana Beavis who is a member of the BRAHMS experiment at RHIC and a member of the Physics

Department. The BNL Radiological Controls Division also has a Health Physicist on the Committee who is an expert in radiation protection.

Information About the Product

The C-AD uses Iridian Technologies™ product lines such as the Authenticam™, and products that appear in physical access systems and automatic teller machines (ATMs). These Iridian products are in compliance with all applicable international illumination safety standards including, American National Standard ANSI/IESNA RP-27.1-96 and International Standard IEC 60825-1, Class 1 LED. These are the latest worldwide standards for eye safety.

Abbreviated Entry Procedures for Controlled Access at RHIC IRs Using the Iris Reader

1.   Stand in front of the iris reader, approximately 3 to 9 inches away, and look into the camera with either eye. The camera will speak instructions back to you.
2.   When accepted, the camera voice will say, "identification completed."
3.   Remove the key from the key tree. You have about 2 seconds to remove the key and keys must be removed in sequential order.
4.   To remove the key, turn it to the left and pull.
5.   With the key in-hand, proceed to the gate.
6.   Contact MCR by phone when you arrive at the gate.
7.   Identify yourself at the gate to the operator by giving your name.
8.   Place key in gate switch and turn key with simultaneous release from MCR.
9.   Remove key and take it with you into the IR.
10.   When you are about to leave the IR, contact the MCR on the phone and ask for release.
11.   Wait for buzzer, open gate, and leave.
12.   Return key-to-key tree.
13.   Stand in front of the iris reader, look into the camera with the eye and log out. Camera voice will say, "identification completed."