

# SAFETY RULES



## *PX SCANNER X-RAY DIFFRACTOMETER*

**VIRGINIA TECH CRYSTALLOGRAPHY LABORATORY**

**214 FRALIN BIOTECH CENTER**

**3076 DERRING HALL**

**Persons in charge:** N. Vogelaar      **Tel:** 1-2093, 1-5925 (Office, Lab)  
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**Other contact:** C. Ceccarelli      **Tel:** (540) 443-9272 (Office)  
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**Authorised Radiation User:** Ross J. Angel

**R.J. Angel.**      **Tel:** 7974 (Office) 540-231-0147 (Home)  
**E-mail:** [rangel@vt.edu](mailto:rangel@vt.edu)

**Principal Users/ Instrument Scientists:**

Gemini	Carla Slebodnick	<a href="mailto:slebod@vt.edu">slebod@vt.edu</a>	1-7974
Nova	Nancy Vogelaar	<a href="mailto:nancy.vogelaar@vt.edu">nancy.vogelaar@vt.edu</a>	1-2093
PX Scanner	Nancy Vogelaar	<a href="mailto:nancy.vogelaar@vt.edu">nancy.vogelaar@vt.edu</a>	1-2093
Powder	Phil Burcham	<a href="mailto:pburcham@vt.edu">pburcham@vt.edu</a>	1-3840
Huber	Jing Zhao	<a href="mailto:jzhao@vt.edu">jzhao@vt.edu</a>	1-5539
Xcalibur-1	Jing Zhao	<a href="mailto:jzhao@vt.edu">jzhao@vt.edu</a>	1-5539
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## **GENERAL.**

*Before starting work in the crystallography laboratory -*

1. Users must obtain permission from R.J. Angel, C. Slebodnick, or N. Vogelaar.
2. Users must pass the radiation safety test for “users” as administered by the radiation safety office of Virginia Tech.

*When working in the laboratories -*

1. Before commencing experiments on an instrument that they have not previously used, users must obtain instruction in its use from R.J. Angel, C. Slebodnick, or one of the *principal users*.
2. Users must fill in the log books and, where appropriate, booking sheets to record their usage of the equipment.
3. The laboratory is not to be used for work not directly connected with X-ray diffraction.
4. Users must clean up after they have used the specimen preparation facilities. Spills of any kind must be cleaned up immediately.
5. A small area for temporary sample storage is provided in the laboratory. Samples left outside these areas will be removed and destroyed without warning.
6. Users must not remove tools from the X-ray laboratories.
7. The computers in the laboratories are provided for the control of the diffractometers and for data processing and related activities. Other uses are not permitted. Attempts to break in to computer systems, to use them without authorization, or to use other persons accounts are forbidden.
8. No radioactive materials may be brought into the laboratory.

## **RADIATION SAFETY.**

1. Users must not attempt to over-ride any interlocks or other radiation safety systems on the X-ray generators, diffractometers and radiation enclosures.
2. Users must not attempt to modify or align the equipment in any way. This includes replacement of X-ray tubes and alignment of monochromators and diffractometers. The only exception is that trained users may exchange sample holders where appropriate.
3. If you believe you may have been irradiated, follow the Emergency Procedures mandated by the X-ray Safety Handbook. In brief:

Notify the radiation safety office 231-5364

Contact the Emergency Radiation Physician at 231-5230 to obtain medical treatment.

Notify RJ Angel, C Slebodnick, or N Vogelaar.

***Radiation burns can be received with only a very brief exposure, and there is no evidence that there is a minimum threshold dosage.***

## **WATER.**

1. If water leaks occur, or water is found on the floor of the laboratory, try to identify the source, turn the X-ray generators down to minimum power, then off, and shut off the water supply. If this cannot be done, or a substantial amount of water is on the laboratory floor turn off all electrical equipment and notify a principal user/instrument scientist above or R.J. Angel. Record your action in the log book(s) of the instrument(s).

## **HIGH VOLTAGE.**

1. The red buttons on the front of the X-ray generators are for turning them OFF. In case of emergency in the laboratory all generators should be turned off. Record your action in the log book(s) of the instrument(s).

2. All of the X-ray generators and tube shields have high-voltage circuits in them. Do not attempt to service or modify them. If you suspect that they are not operating correctly, notify a principle user (above) or R.J. Angel. Record your observations in the log book(s) of the instrument(s).

**NOTICE:** Users found breaking these rules will be immediately excluded from Crystallography Laboratory *without appeal*.