



BL-10 軟 X 線 XAFS ビームライン

◆概要

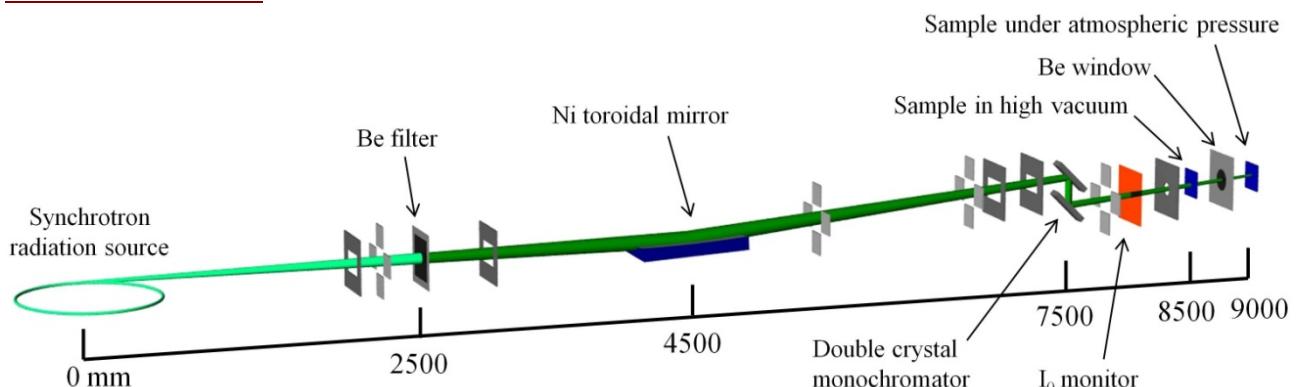
立命館大学 SR センター BL-10 は 2 結晶分光器を用いた 1000~4000 eV 程度の軟 X 線の高エネルギー領域 XAFS 用のビームラインで、K 吸収端では Na、Mg、Al、Si、P、S、Cl、Ar、K、(Ca)、L 吸収端では Zn ~ Sb の測定が可能である。高真圧測定室、大気圧測定室(He ガス雰囲気)がタンデムに配置され、試料は固体以外にも液体やゾル・ゲル等の測定が可能である。また、近年開発したトランスマッセルを使用し、嫌気性試料をグローブボックスから大気非暴露で輸送・測定することも可能である。

◆ビームラインの構成



- フロントエンド
可視・真空紫外光カット用 Be フィルタ
- 集光鏡
Ni (1000 Å)/Si トロイダルミラー
- 分光器
ゴロブチエンコ型 2 結晶分光器
Beryl(10-10)、Quartz(10-10)、KTP(011)
InSb(111)、Ge(111)、Si(111)、Si(220)
- Io モニタ
- 高真圧測定室、大気圧測定室

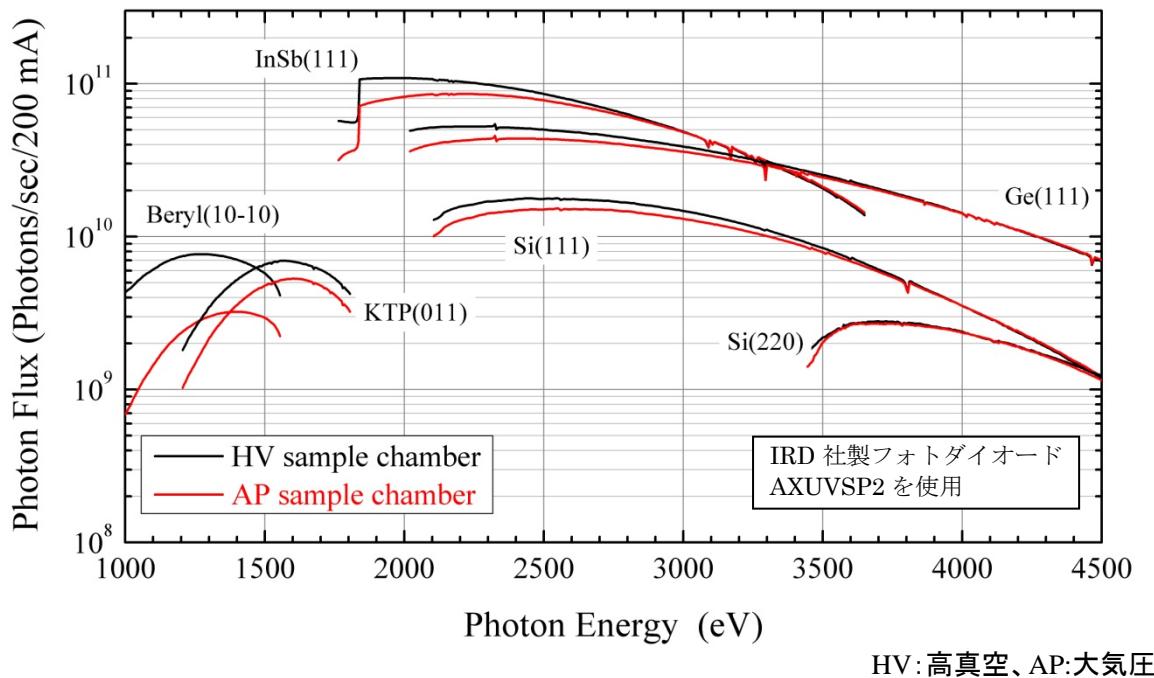
◆光学系のレイアウト



◆ビームラインの仕様

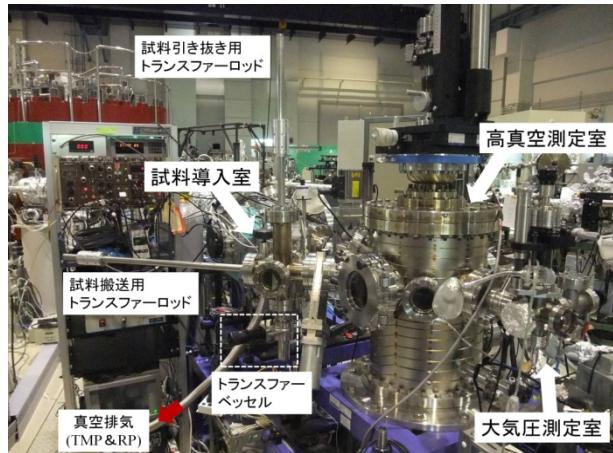
構成	フロントエンド、集光ミラー、2 結晶分光器、Io モニタ、測定室
エネルギー範囲	約 1000 ~ 4000 eV 程度
ビームサイズ	高真圧測定室: 約 6 mm × 3 mm / 大気圧測定室: 約 5 mm × 2 mm
フラックス	10^8 – 10^{10} photons/sec 程度
測定室	高真圧測定室: 5 分程度の排気で測定可。試料 16 個取り付け可。 大気圧測定室: 30 分程度で He ガス置換可。試料 5 個程度取り付け可。
測定モード	全電子収量(サンプルカレント)、蛍光 X 線収量(シリコンドリフト検出器)、透過法
測定試料形態	固体(ウエハー、粉末など)、溶液、ゲルなど
その他	高真圧測定室: 全電子収量、蛍光収量測定、透過法が可能。 トランスマッセル(BL-2 と共に)の利用可能。

◆試料上のフランクス

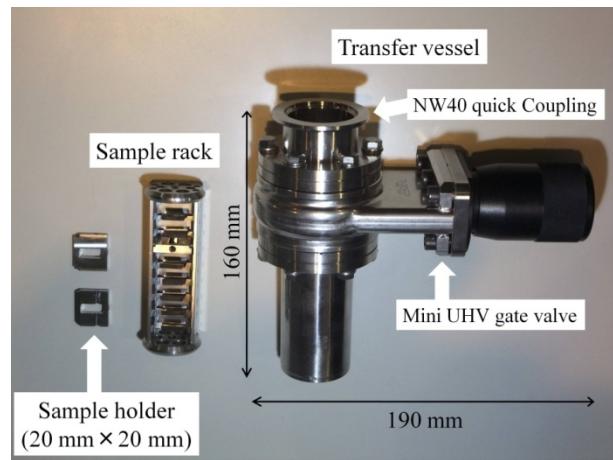


HV:高真空、AP:大気圧

◆大気非暴露試料輸送・設置システム

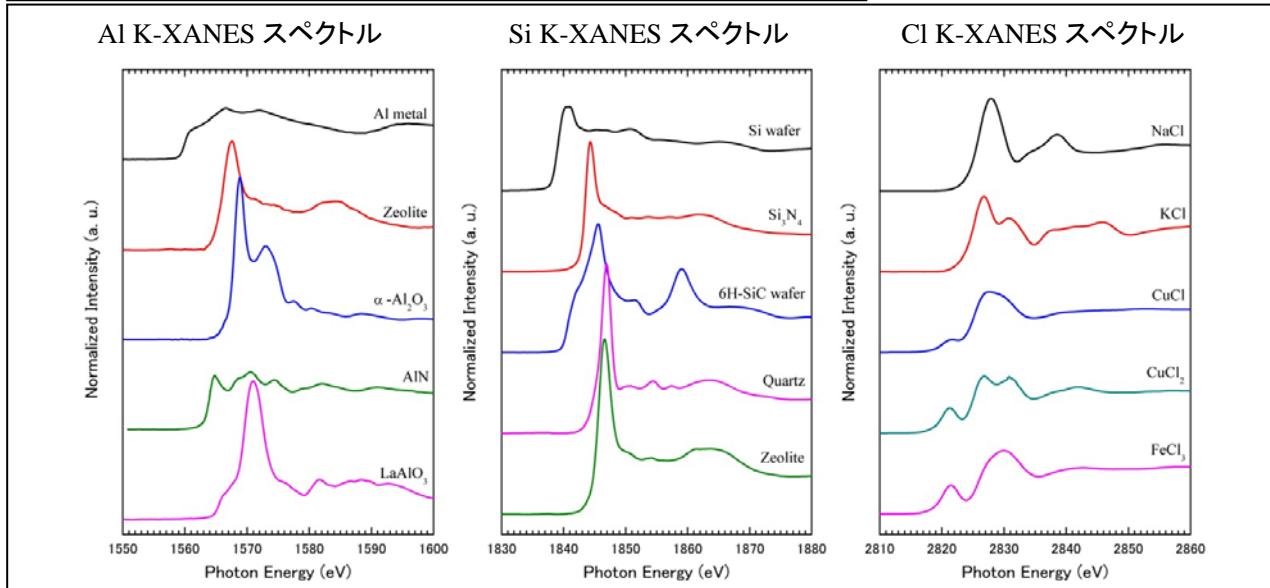
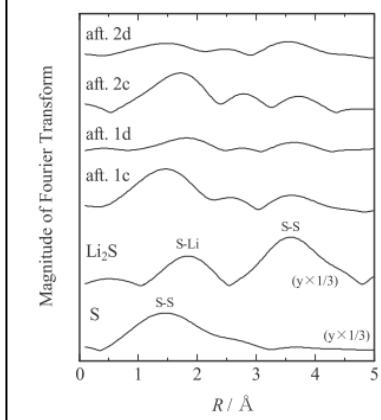
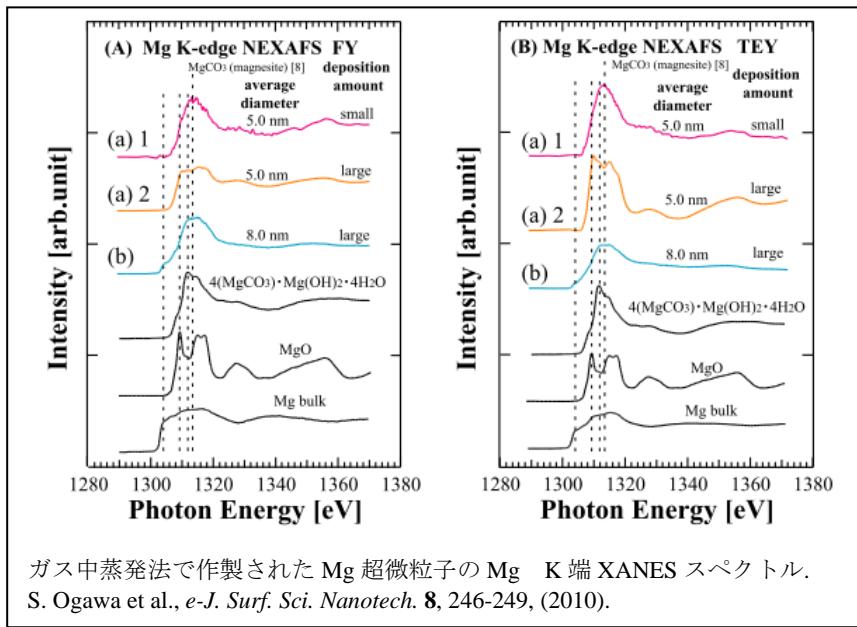
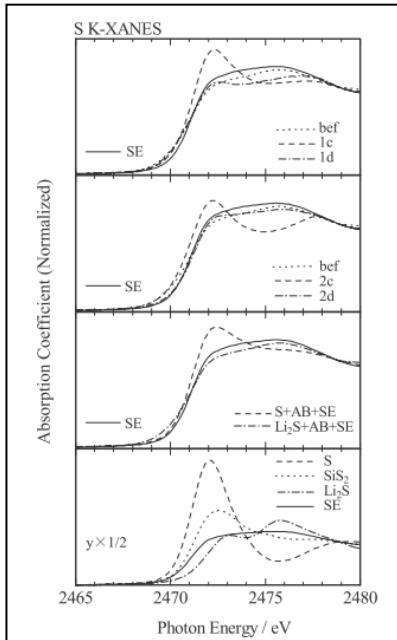
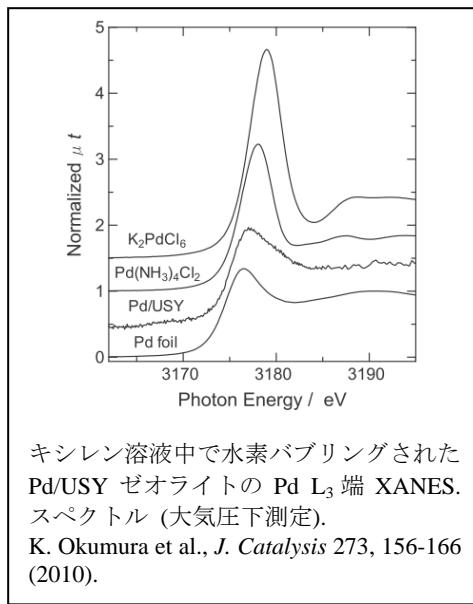
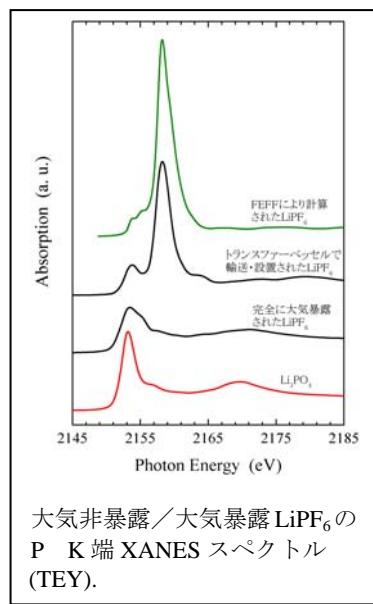


試料導入系と測定室



トランスマーチャンバー

◆測定例



◆近年の成果

[Paper]

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[Book]

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[Prize]

[1] 名古屋大学大学院工学研究科（八木研究室）の修士 2 回生 小川智史君が第 13 回 XAFS 討論会にて BL-10 を利用した成果を発表し、学生奨励賞を受賞されました。

小川智史¹、中西康次²、丹羽悠登¹、村上峻介¹、太田俊明²、八木伸也¹
¹名古屋大学工学研究科、²立命館大学 SR センター

「Mg K 吸収端 NEXAFS を用いた Mg ナノ粒子の大気酸化過程分析」



[2] 京都大学大学院人間・環境学研究科（内本研究室）の博士 1 回生森拓弥君が The International Conference on Solid State Ionics (SSI-19) にて BL-10 を利用した成果を発表し、Best Poster 賞を受賞されました。

Takuya Mori¹, Yuki Orikasa¹, Koji Nakanishi², Taketoshi Minato², Toshiaki Ohta³ and Yoshiharu Uchimoto¹

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「Reaction mechanism of FeS₂ positive electrode for aluminum secondary battery」

The 19th International Conference
on Solid State Ionics
June 2 – 7, 2013, Kyoto, Japan
SSI
19

Best Poster Award

The poster entitled "Reaction mechanism of FeS₂ positive electrode for aluminum secondary battery"
by Takuya Mori, Yuki Orikasa, Koji Nakanishi,
Taketoshi Minato, Toshiaki Ohta,
Yoshiharu Uchimoto

has been selected as the best poster presented
in the 19th International Conference on Solid State Ionics.
J. Quennec
Chair, the Poster Award Committee

Junichiro Mizusaki
Chair, the 19th International Conference on Solid State Ionics