



# UVSOR光源加速器の高度化計画

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共同研究者

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# UVSOR光源加速器高度化計画とは

- **ラティス改造**

  - 低エミッタンス化(160 → 27nm-rad)

  - 直線部増設(3m×4 → 4m×4 + 1.5m×4)

  - 直線部低β化(→ Narrow-gap Devices)

- **挿入光源増設**

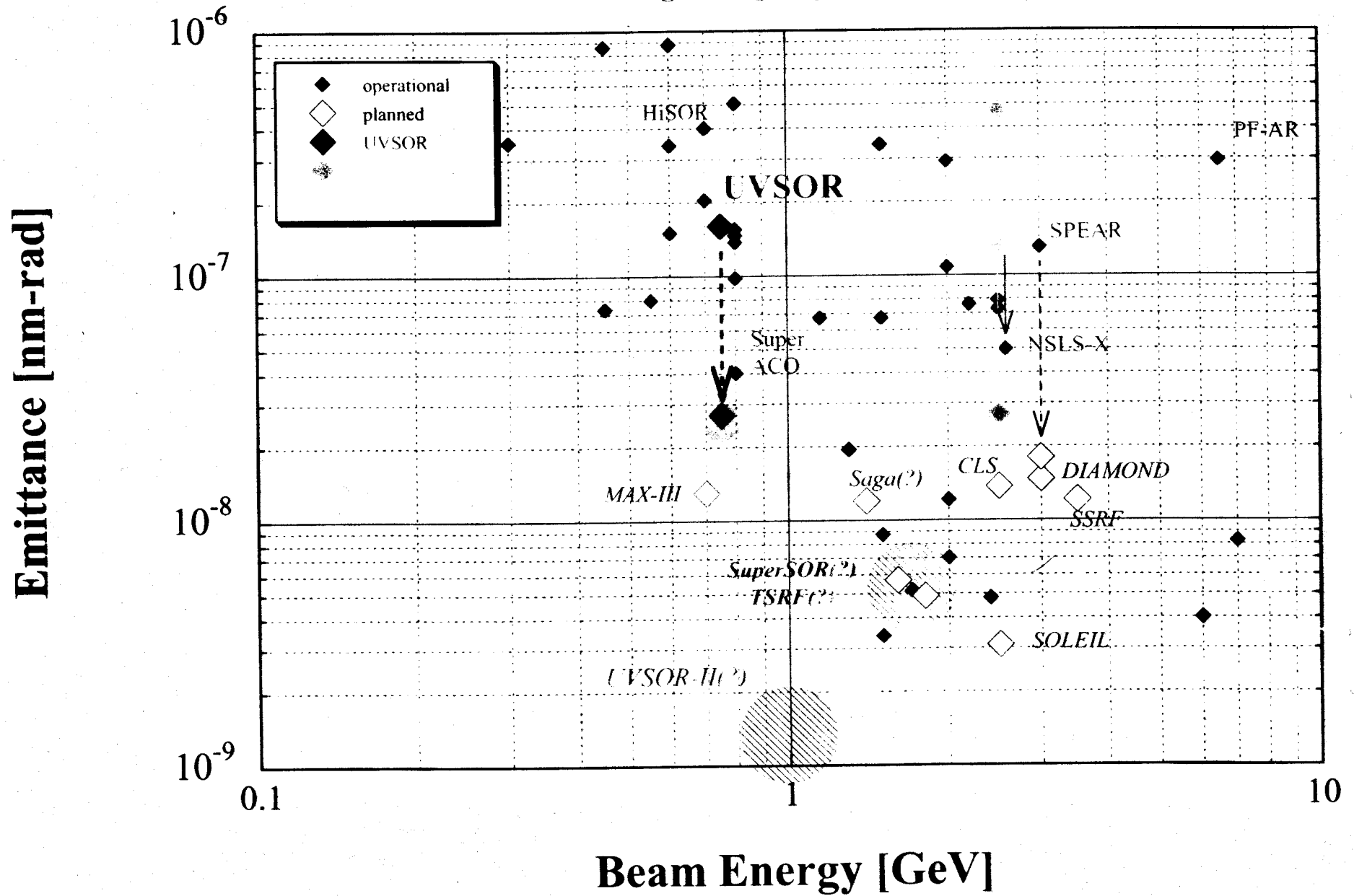
  - BL7A、BL3A、……

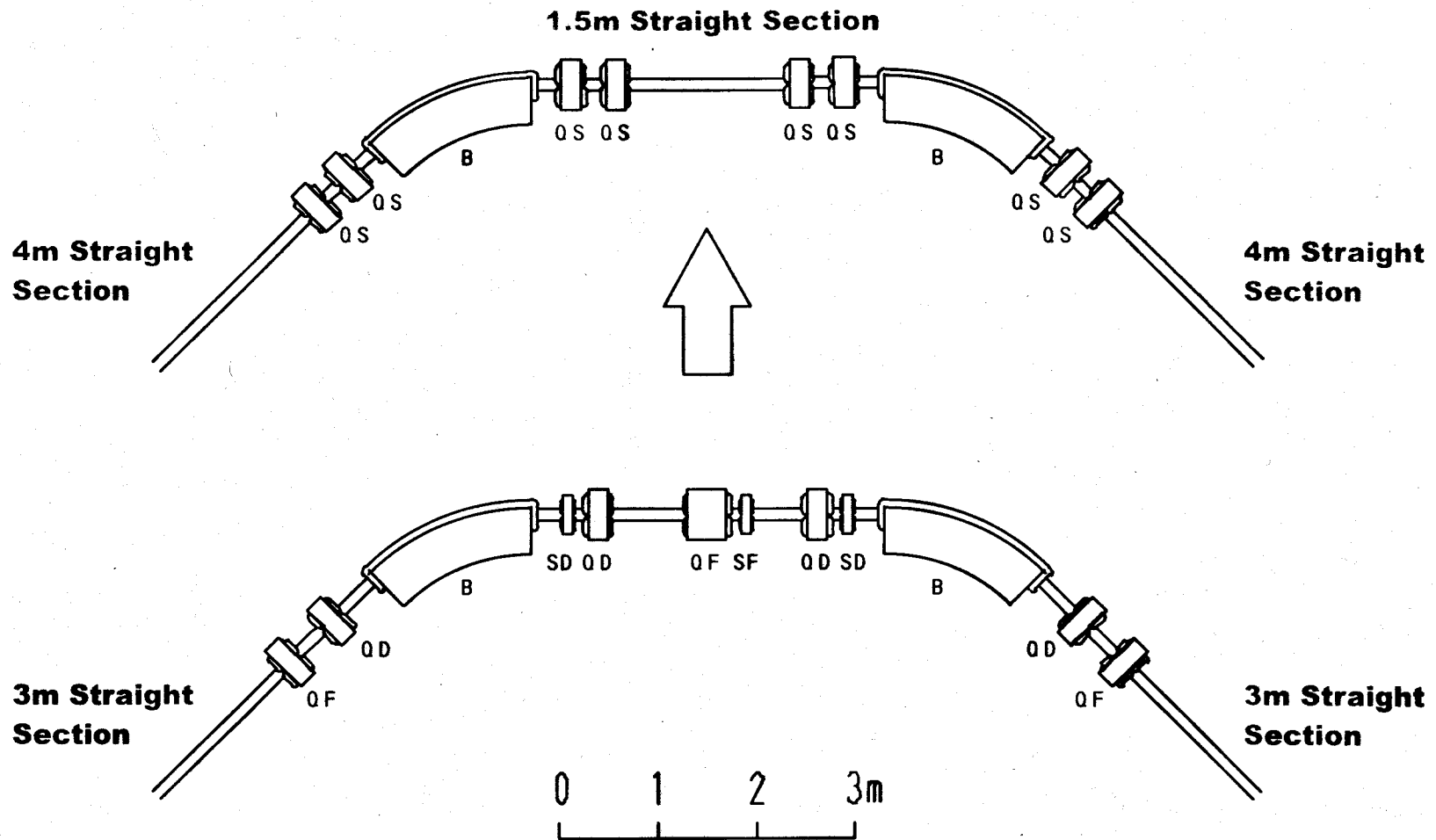
- **加速器要素更新**

  - 入射器、高周波加速空洞、電磁石系、制御系……

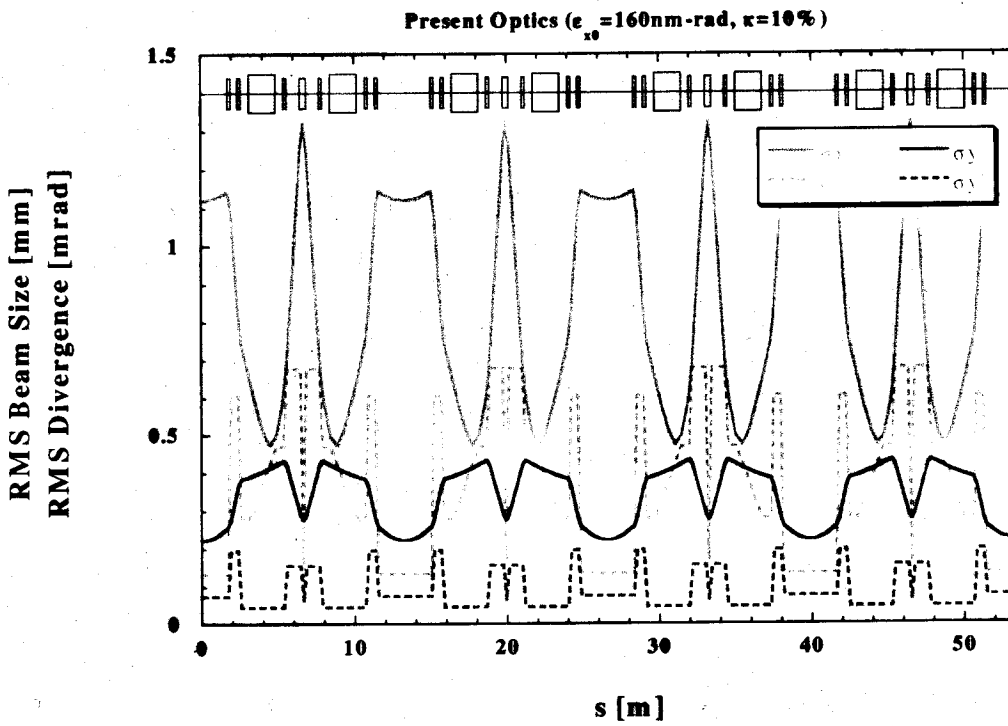
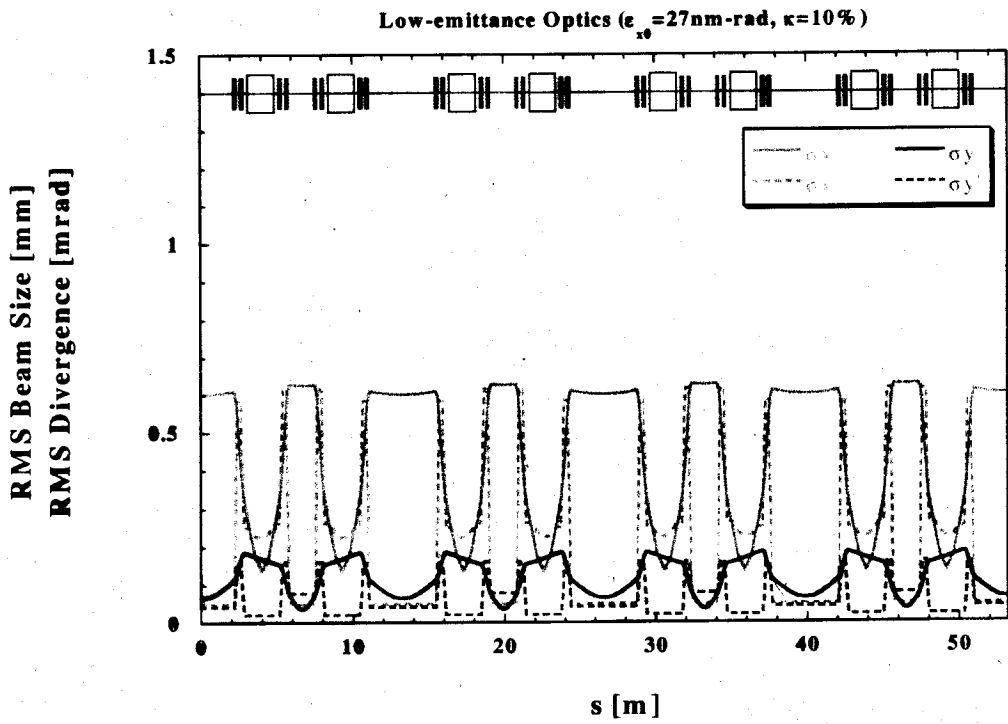
    - (→性能向上、信頼性向上)

# Storage Ring Light Sources

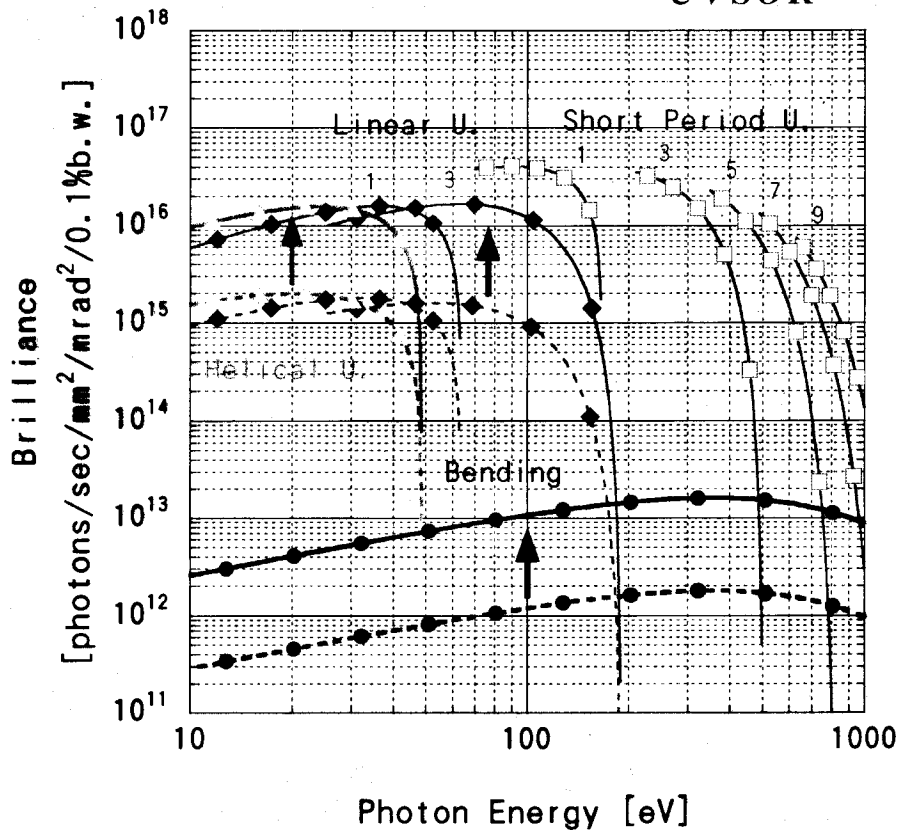




**New Lattice for UVSOR**  
**Present (lower) and Upgraded (upper)**  
**One quadrant of the ring**



# UVSOR



## Synchrotron Radiation Spectra of Upgraded UVSOR

The existing linear and helical undulators will cover the energy range below 100 eV with increased brilliance. Future short period undulators will cover the energy range above 100 eV.

### Electron Beam Parameters

Energy	750 MeV
Average Beam Current	200 mA
Emittance	27 nm-rad
Energy Spread	$4.2 \times 10^{-4}$
XY Coupling	10%

#### 4 m straight section

Horizontal Size	600 $\mu\text{m}$
Horizontal Divergence	50 $\mu\text{rad}$
Vertical Size	61 $\mu\text{m}$
Vertical Divergence	41 $\mu\text{rad}$

#### 1.5m Straight Section

Horizontal Size	630 $\mu\text{m}$
Horizontal Divergence	50 $\mu\text{rad}$
Vertical Size	33 $\mu\text{m}$
Vertical Divergence	74 $\mu\text{rad}$

### Light Source Parameters

#### Bending Magnets

Bending Radius	2.2m
Critical Energy	425 eV

#### Linear Undulator (existing)

Length	2.0 m
Period Length	84 mm
Number of Periods	24
Max. K-parameter	3.6

#### Helical Undulator/Optical Klystron (existing)

Length	2.4 m
Period Length	110 mm
Number of Periods	18
Max. K-Parameter	4.6 (helical mode)

#### Short Period In-vacuum Undulator (in future)

Length	1 m
Period Length	32 mm
Number of Periods	32
Max. K-parameter	1.7
Min. Gap	10 mm



## 準備状況

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- **ラティス設計 完了**
- **光源リング電磁石測量 完了 (2001年春)**
- **真空封止型アンジュレータ1号機 製作中**  
(2002年春BL7A設置)
- **収束電磁石試作機 完成**  
(磁場測定ほぼ完了)
- **真空系設計 進行中**  
(2001年末完了予定)
- **高周波加速空洞入力カフラ- 製作中**  
(2002年春交換予定)