

研究責任者名 Name	MOLODOZHENTSEV Alexander	所属機関 Affiliation	KEK (Accelerator Division 1)	
受理番号 Proposal No.	大型 10-03	研究課題名 Program title	Beam dynamics study for the JPARC Main Ring	

研究を終了しましたので、下記の通り報告します。

成果の概要

Abstract

(和文)

(英文)

(1) We continue our effort to optimize the J-PARC Main Ring performance for the moderate beam power at the injection energy. The 100kW beam power at the output energy of 30GeV is the first mile stone for the machine commissioning. To optimize the machine performance we compare the computational model of the machine with the measured lattice parameters of the real machine, obtained during the MR commissioning RUNs. By using the computational model we analyze the machine operation scenarios to provide the safe machine operation with the moderate beam power.

(2) The beam power up-grade plan has been investigated extensively.

(3) We continue our effort to develop the computational model of the J-PARC Main Ring by using the combined PTC-ORBIT code and the SAD-SCTR code, compiled for the KEK-SCA system. This model of the machine should reproduce the basic machine characteristics, measured during the machine commissioning. The single particle dynamics, studied by the computational model, deliver the information about the machine performance with 'zero' beam power including the effects of the machine resonances. The multi particle dynamics has been used to predict the machine operation with the space charge effects with minimum particle losses.

研究成果を公開しているホームページアドレス

研究成果の 公表	口頭研究発表 件数	査読付きの学術論文数	プロシーディング論 文数	その他（投稿中を含 む）
	2	0	2	0

成果の公表リスト（それぞれの枠に番号をつけて記入願います。）

口頭研究発表

1. A.Molodozhenstev, Operation of the J-PARC Main Ring with the Moderate Beam Power: Predictions and Observations, ICFA HB 2010 Workshop, Sept.27-Oct.1, 2010, Switzerland
2. K.Ohmi et al, Simulation of Space Charge Effects in JPARC, ICFA HB 2010 Workshop, Sept.27-Oct.1, 2010, Switzerland

査読付きの学術論文(URL を記載)

プロシーディング論文(URL を記載)

1. A.Molodozhenstev, Operation of the J-PARC Main Ring with the Moderate Beam Power: Predictions and Observations, ICFA HB 2010 Workshop, Sept.27-Oct.1, 2010, Switzerland
2. K.Ohmi et al, Simulation of Space Charge Effects in JPARC, ICFA HB 2010 Workshop, Sept.27-Oct.1, 2010, Switzerland

その他（学位論文、紀要、投稿中の論文を含む）（URL を記載）

特記（本研究に関係した、新聞記事・著作、受賞など）