



# Efficient solution of constrained quadratic programming problem in quantum annealer

## Possible to solve constrained quadratic programming problems

### Overview

Recently, almost all combinatorial optimization problems are represented by constrained quadratic programming problems. However, in solving them, we further apply the penalty method, etc., transform them into unconstrained quadratic programming problems, and perform quantum annealing operations on the converted mathematical expressions. However, the conversion generated redundant variables that required a huge amount of computing resources, so that practical operations are impossible. We propose a method for solving all combinatorial optimization problems by quantum annealing, and it became possible to solve practically all optimization problem.

### Product Application

AI, artificial intelligence, machine learning, deep learning, optimization problem, neural network, quantum annealing, quantum computer, etc.

### IP Data

IP No. : PCT/JP2024/009014  
Inventor : OHZEKI Masayuki, HIRAMA Sota  
Admin No. : T22-365



### Features・Outstandings

By the solution of this technology,

Possible to solve almost all combinatorial optimization problems by quantum annealing.

Overwhelmingly faster than a Neumann computer (digital computer) in an increasingly large optimization problems.

\* For technical details, an NDA is required.

### Contact



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