

## The results of my study

When I was a graduate student, I studied the general cohomology theory, in particular the K-theory under the guidance of my adviser Prof. Z. Yosimura. The subjects of our study are concepts called “quasi KO-type” or “K-local type”. The distinction of our study of K-theory is the handling spaces in the category of CW-spectra. Bousfield and Yosimura have studied the basis of its theory in the early 1990’s, but its applications have not been studied well. We determined the K-local types of mod  $p$  lens spaces for an odd prime  $p$ , the quasi KO-types of weighted projective spaces, weighted mod 4 lens spaces and mod 8 lens spaces. As a corollary we can give another easy computation and its geometrical new characterization of J-groups of mod  $p$  lens spaces for an odd prime  $p$  which have been calculated by Kôno-Tamamura. The K-groups of weighted lens spaces have been very little studied by the traditional way however Amrani gave a partially result. These results show the usefulness of our method. Moreover we could delve into the basis of “quasi KO-theory”. We published the four papers and I received a doctor’s degree in science from Osaka City University in 1998.

After I finished graduate school, I was resisted as a researcher in Osaka City University and broadened my horizons and study the topology in particular toric geometry or transformation group theory, under the guidance of my adviser Prof. M. Masuda. The main subjects of our study are the relationship between the topological extension of “toric varieties” and the combinatorial theory. This theme is recently interested by many people such as Hattori-Masuda or Davis-Januszkiewicz, and is studied from the several ways. My first result in this area was that I showed the combinatorial relationship between “multi-fan” introduced by Hattori-Masuda and “convex chain” introduced by Khovanskii. Here “multi-fan” which is defined from “torus manifold” is an extension of “fan”.in toric geometry. I announced this result at the workshop of transformation group theory, wrote a paper and submitted. Recently I am interested in the relationship between the topology of “small cover” which is a mod 2 reduction of the toric variety and the coloring theory for convex polytopes (or graphs). In this theme I studied together with H. Nakayama who was a graduate student of Osaka City University in last year. We announced some results at workshops and submitted a paper a journal.