研究会「Knots in east Osaka VI」

日時：2013 年 2 月 23 日（土）

場所：大阪工業大学　大宮キャンパス　6 号館　681 教室

プログラム

13:00-13:40	安原 晃	絡み目の自己局所変形について
14:00-14:40	金信 泰造	Links which are related by a band surgery
15:00-15:40	中西 康剛	A note on Hamilton knot projection
16:00-16:40	河内 明夫	An example of a 4-manifold with every closed 3-manifold embedded
17:00-17:40	渋谷 哲夫	Genera of links related by a simple ribbon fusion

アブストラクト

安原　晃　（東京学芸大学）　絡み目の自己局所変形について

自己パス変形や自己デルタ変形は，絡み目のリンク・ホモトピーの一般化として渋谷先生により定義された絡み目の局所変形である．本講演では，これらの局所変形に関してこれまでに得られた結果を，渋谷先生との共同研究を中心に紹介する．

金信　泰造　（大阪市立大学）　Links which are related by a band surgery

We introduce some criteria for two links, which are related by a band surgery or crossing change, using the determinant and the Jones polynomials. We also give an improved table of $H(2)$-Gordian distances between knots with up to seven crossings. This is a joint work with Hiromasa Moriuchi.

中西　康剛　（神戸大学）A note on Hamilton knot projection

This is a joint work with R. Higa and R. Nakanishi. Diao, Ernst, and Yu have studied which kinds of knot projections are Hamiltonian, and show that every knot type has a Hamilton knot projection with at most $4\mathrm{cr}(K)$ crossings, where $\mathrm{cr}(K)$ means the minimum crossing number of K. In this talk, we will show that every knot type has a Hamilton knot projection with at most $2\mathrm{cr}(K) - 3$ crossings.

河内　明夫　（大阪市立大学）An example of a 4-manifold with every closed 3-manifold embedded

An embedding f from a closed orientable 3-manifold M into an open orientable 4-manifold X is called a type I or type II embedding according to whether the complement $X - f(M)$ is connected or not, respectively. In this talk, we discuss an example of an open orientable 4-manifold with every closed orientable 3-manifold embedded by a type I embedding in which a closed orientable 3-manifold cannot be embedded by any type II embedding.

渋谷　哲夫　（大阪工業大学）Genera of links related by a simple ribbon fusion

For an oriented link ℓ in the 3-sphere, there is a Seifert surface of ℓ. The disconnectivity number of ℓ, denoted by $\nu(\ell)$, means the maximum number of connected components of Seifert surfaces of ℓ. For each integer r $(1 \leq r \leq \nu(\ell))$, there is a Seifert surface F of ℓ with $\sharp(F) = r$. The r-th genus of ℓ, denoted by $g_r(\ell)$, means the minimum number of genera among these Seifert surfaces of ℓ with $\sharp(F) = r$. We study the relations of disconnectivity numbers and genera of links ℓ and L such that L is obtained from ℓ by a simple ribbon fusion and show that $\nu(L) \leq \nu(\ell)$ and $g_r(L) \geq g_r(\ell)$ and that, if $\nu(L) = \nu(\ell) = s$ and $g_r(L) = g_r(\ell)$, then L is ambient isotopic to ℓ. This is a joint work with K. Kishimoto and T. Tsukamoto.