



POLITÉCNICA



Universidad
Politécnica
de Madrid

ETSI SISTEMAS
INFORMÁTICOS

Seminario de Investigación

Curso 2016-17

Martes 14 de marzo, 16:00 – Sala de Grados.

“Computing With Peptides”

Ponente: *Victor Mitrana* (profesor de la UPM)

Resumen:

We discuss a computational model using the peptide-antibody interactions. These interactions which are carried out in parallel can be used to solve NP-complete problems. We show how to use peptide potential experiments to solve a few problems.

Exercise: *For each question tick the correct answer:*

1. *In the solution of the first problem, which is the decision if fluorescence is detected:*

- G has more occurrences of X than H*
- H has more occurrences of X than G*
- The two multisets have the same number of occurrences of X*

2. *The number of peptides in the solution of the Hamiltonian Path Problem for an instance with n nodes is:*

- An exponential of n*
- A polynomial of n*
- A factorial of n*

3. *Given two multisets of the same antibody, can peptides be used for :*

- Computing the sum of them*
- Computing their difference*
- Deciding the minimum between them*

4. *The algorithm that estimates the number of a given antibody in a multiset:*

- Computes the exact number of that antibody*
- Gives an interval for this number*
- Check whether this number is a prime number*

5. *Can NP-complete problems be solved with peptides:*

- Yes, all NP-complete problems can be solved*
- No, only some of them can be solved*
- No, only instances of NP-complete problems can be solved*

Enviar el cuestionario resuelto a jglopez@etsisi.upm.es