1086-VO-2924 **Henrique Oliveira*** (holiv@math.ist.utl.pt), Mathematics Department, Av. Rovisco Pais, 1, Lisbon, Portugal. *On the distribution of the last digits under the Syracuse iteration.*

Lothar Collatz proposed in 1937, with a slightly different formulation, that any natural number under the iteration

$$C(n) = \begin{cases} 3n+1, \text{ if } n \text{ is odd} \\ \frac{n}{2}, \text{ if } n \text{ is even.} \end{cases}$$

will eventually reach the cycle $\{1, 2\}$. Many authors studied this problem and the Collatz conjecture is also named the $3n+1$ problem, Ulam conjecture, Kakutani's problem, Hasse's algorithm, Thwaites conjecture or the Syracuse's problem. In this talk we will prove that under the forward (resp. backward) iterations of $C(n)$ for any initial condition far from the cycle $\{1, 2\}$ the probability distribution of the end digit of $C^m(n)$, for m integer, is uniform for the even numbers and uniform for the odd numbers. The probability distributions for the forward iteration and backward iterations are different due to the non invertible character of the iteration scheme. (Received September 26, 2012)