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Elif Tan* (etan@ankara.edu.tr), Ankara University, Department of Mathematics, Tandogan,
06100 Ankara, Turkey. *Bi-periodic Fibonacci quaternions*.

In this talk, we present a new generalization of the Fibonacci quaternions $\{Q_n\}$ as:

$$Q_n = \sum_{l=0}^3 q_{n+l} e_l$$

where q_n is the n -th bi-periodic Fibonacci number and defined by

$$q_n = \begin{cases} aq_{n-1} + q_{n-2}, & \text{if } n \text{ is even} \\ bq_{n-1} + q_{n-2}, & \text{if } n \text{ is odd} \end{cases}, \quad n \geq 2$$

with initial values $q_0 = 0$, $q_1 = 1$ and a, b are nonzero numbers. They are emerged as a generalization of the best known quaternions in the literature, such as classical Fibonacci quaternions, Pell quaternions, k -Fibonacci quaternions. We give the generating function and the Binet formula for these quaternions. By using Binet formula, we obtain some well-known results. (Received January 26, 2016)