Problem 8. «Scientists»

Two young cryptographers and very curious students Alice and Bob studied different cryptosystems and attacks on them. At the same time they were very interested in biographies of famous scientists and found out one interesting **property** that can be used in cryptosystems. They choose three pair of scientists:

Charles Darwin and **Michael Faraday**,
Werner Heisenberg and **Johannes Kepler**,
Hans Christian Orsted and **Mikhail Lomonosov**.

Alice and Bob choose a cryptosystem and an attack they would like to study. They constructed three sets of parameters for the cryptosystem: one set according to each pair of scientists. Then Alice choose a phrase consisting of 18 English letters (spaces were omitted) and divided it into three parts of 6 letters. She represented each part as a hexadecimal number using ASCII code. Alice encrypted the first part by the cryptosystem for each set of parameters, then the same actions she made for the second and the third parts. Finally, Alice got the following three groups of three ciphertexts (in hexadecimal notation):

	Part 1	Part 2	Part 3
Set of parameters 1	`2512 1F5A 0079`	`B494 222D 3E1C`	`275E B751 4FDB`
Set of parameters 2	`3D0D 6812 0443`	`5111 5BFD 9398`	`0815 6223 2698`
Set of parameters 3	`1EDC 4856 8CE2`	`9C18 2A32 B9AB`	`9A1C AD5C 25D7`

and asked Bob to decrypt it using the attack! Bob successfully read the secret phrase. Could you

- find the property like Alice and Bob,
- understand what is the cryptosystem and the attack chosen,
- decrypt the ciphertext by applying this attack?

*What word should be added at the beginning of the decrypted text according to the famous words of Mikhail Lomonosov?