## Correlation values of the Gaussian Pulses for different values of sigma.



**Sigma chosen is 0.9**



The Gaussian derivatives are perfectly orthogonal; there is no correlation at all.

Correlation results are only confirmative when odd and even derivatives are superimposed. For instance **f12, f14, f23,** and **f34**

**Proposal 1:**

Channel A will only transmit signals using odd derivatives, f1 and f3

Channel B will only transmit signals using even derivatives f2 and f4

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Time Slots** |  |  |  |  |  |  |  |  |
| Signals from channel A | F1 | F3 | F3 | F1 | F3 | F1 | F1 | F3 |
| Signals from channel B | F2 | F2 | F4 | F4 | F2 | F4 | F4 | F2 |
| Composite signal to be transmitted | F12 | F23 | F34 | F14 | F23 | F14 | F14 | F23 |

The composite signals could be decoded in the receiver side since the composite signals containing the odd and even derivatives can be decoded. This will multiplex the signals from two different channels into one in each time slot.

**Proposal 2:**

We can divide the serial bits of data into two channels and transmit it as in proposal 1.