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| Computation of distributed alternating currents |
| A numerical (PEEC) approach using the Java programming language. |
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# Mutual inductance between conductors with rectangular cross sections

In Figure 1 currents and are running perpendicular to the y and z plane and are carried through two conductors with rectangular cross sections. The rectangular areas are bound by the sides A, B, C and D respectively. The conductor axes are located at points and . The conductors are characterized by a coefficient of mutual inductance M, and may be considered as to consist of filament conductors with partial mutual inductance between individual filaments from one conductor to the other. As an example two coupled filaments are outlined at points and in the figure.

r

R

y

A

x

C

D

B

p

q

s

**M**

Figure 1 Mutual inductance M between two conductors carrying currents I1 and I2 with rectangular cross sections

|  |  |
| --- | --- |
|  | (1) |

|  |  |
| --- | --- |
|  | (2) |

Figure 2 Mutual inductance *m* between two parallel filaments *l* and *k*

Grover, Chapter 6, formula 28:

|  |  |
| --- | --- |
| where  , , | (3) |