Ley de biot

From SEG Wiki This site uses cookies. If you continue to do not change your browser settings, you will agree to use our cookies in accordance with our cookie policy. You can turn off cookies at any time. Find out more We also use affiliate advertising cookies to deliver targeted, geophysical advertising to you; these cookies are not added without your direct consent. Allow Partner Advertising Cookies Illustration equation Biot-Savart. The Law of Biot-Savart, dating back to 1820 and named after French physicists Ian Baptiste Biota and Felix Savart, points to a magnetic field created by stationary electrical currents. This is one of the fundamental laws of magnetostatics, just like the law of coulon in electrostatics. In the case of current circulating in filiform (or closed) circuits, the contribution of an infinitely small element of length d l →'displaystyle d'vec' circuit, passed by the current I'displaystyle I', creates an elementary contribution of the magnetic field, (d) B →, at the point, where the r → vector is indicated at the distance of r'displaystyle r'displaystyle', at a distance r'displaystyle r'displaystyle r' from d l →'displaystyle d'vec, which indicates in the direction of the current I: d B → s μ 0 4 π i d l → × r 2 'display d'vec → × {0}'B frac'b 4-pi-frac-id-vec-l-times-hat-r-r-{2}-where μ 0-displaystyle-mu No {0} magnetic vacuum permeability, and r 'displaystyle' is a unit vector vector with a vector r → 'display' ie. → . . . . He said, he said, he said, he said. In the case of current distributed in volume, the contribution of each volume of the distribution element, It's given: d b →' μ 0 4 π J → × R → R 3 d'displaystyle d'vec 'B'frac'mu 'mu' {0} → {3} The current density in the volume element d 'display dvstyle' The relative position → the point at which you want to calculate the field is the relative position of the point in which you want to calculate the field, relative to the volume element in question. In both cases, the final field is the result of the application of the overlapping principle through the expression: B → s ∫ d B → . . . . He said , he said that he was a T- - he said that I. . . . . In a generalized approximation, a generalized approximation can be determined if the current density j: B x K m ∫ j × r 2 2 d V s displaystyle B (K_),m'int (A) »'{2}'dV'being: d V is the differential element of volume. K m μ 0 4 π .displaystyle K_.m.frac .mu . {0} .4.pi . . . . Biot Дивергенция и вращение стационарного магнитного поля можно найти путем простого применения таких операторов к закону Biot и Savart Divergence Применяя оператора nabla к выражению, у вас есть: ∇ · B ' μ 0 4 π ∫ V ∇ · (J × r ' r 2) d V ' displaystyle abla 'cdot 'mathbf' No {0}-4-pi-int -V-abla-cdot-left(-mathbf-J-times-frac-mathbf-hat-r-r-{2}-right)-dV-Учитывая, что расхождение применяется в точке оценки в области , независимой от интеграции J-displaystyle-mathbf-J-- по всему объему, оператор не влияет на J'displaystyle 'mathbf'. Applying the corresponding vector identity: ∇ · B - μ 0 4 π ∫ V J · [∇ × ∇ (1 r)] d {0} V . . . . Jbf .j.cdot .left[abla .times abla .left('frac {1}'r'right)'' dV'' Since: ∇ × ∇ (1 r {1}) . . . . you have: ∇ · B s 0 'displaystyle abla' adb's'cdot'mathbf'B'0' Rotational Applying the rotational operator we have: ∇ × B's μ 0 4 π ∫ V ∇ × (J × r'r 2) d V ' 'displaystyle abla' Bbf B frac mu {0} 4 pi _'V'abla'times' , 'left('mathbf', 'J', 'times', 'frac', 'mathbf', 'hat', 'r', '{2}'right)dV'' just as it happened in the divergence , оператор не влияет на J'displaystyle 'mathbf', так как его координаты являются координатами интеграционного домена, а не точки оценки вращения. Applying the corresponding vector identity and knowing that ∇ · r s 2 x 4 π δ (r {2}) ∇ × . . . . μ . . . . . 0 4 π ∫ V J · (∇ · r s r 2) d V ' μ μ 0 ∫ V J δ (r) d V ' displaystyle abla'times 'mathbf 'B' s'frac'm _{0}'4' pi .int _'V'mathbf 'J' 'cdot'left(abla 'cdot'frac 'mathbf''' 'hat'r' 'r'{2}'right)dV'''mu _{0}'int _'V'mathbf 'J' (delta) (r)-dV'- Performing the integration is finally obtained: ∇ × B s μ 0 · J 'displaystyle abla'times 'mathbf' , 'b', 'mu '{0}', 'cdot', 'mathbf', 'J', note that the above is only valid for stationary magnetic fields. If the magnetic field was not stationary, the term would appear separately because of the displacement current. See also Jean-Baptiste Biot Felix Savart Magnetism Vorticity Data: No 171340 Multimedia: Biot-Savart Law obtained from ley de biot savart. ley de biot-savart pdf. ley de biot savart aplicaciones. ley de biot savart formula. ley de biot savart ejercicios resueltos. ley de biot química orgánica. ley de biot savart ejercicios. ley de biot quimica