

C++ code 9.9.35: Member function `diffusionEvolutionOperator()` of `StrangSplit`
→ [GitLab](#)

```
2  Eigen::VectorXd diffusionEvolutionOperator(double tau,
3                                             const Eigen::VectorXd &mu) {
4      Eigen::VectorXd evol_op;
5
6      // sparse LU decomposition: done in every timestep because timestep size may
7      // vary.
8      solver.compute(M_ + tau * xi_ * A_);
9      LF_VERIFY_MSG(solver.info() == Eigen::Success, "LU decomposition failed");
10     Eigen::VectorXd rhs = -A_ * mu;
11
12     // First stage SDIRK-2
13     Eigen::VectorXd k1 = solver.solve(rhs);
14     LF_VERIFY_MSG(solver.info() == Eigen::Success, "LU decomposition failed");
15     // Second stage SDIRK-2
16     Eigen::VectorXd k2 = solver.solve(rhs - tau * (1 - xi_) * A_ * k1);
17     LF_VERIFY_MSG(solver.info() == Eigen::Success, "LU decomposition failed");
18     // Recover solution
19     evol_op = mu + tau * (1 - xi_) * k1 + tau * xi_ * k2;
20     return evol_op;
21 }
```