

CoCoALib

	2024-1					2024-2					2024-3					2024-4					2024-5					2024-6				
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26				
CoCoA																														
CoCoALib	CoCoALib																													
MinPolyQuot not documented																														
New function IsInSymbols																														
DivAlg in CoCoALib																														
CoCoALib releases on redmine																														
CoCoALib - CoCoALib-0.99850																														
Matrix equation solving; linear (...)																														
Improve threadsafety																														
Matrix equation solving: LinKer																														
Elim(vector<long>) as PPOrderingCtor																														
Iter for subsets/tuples																														
MatrixOrderingMod32749Impl: test (...)																														
SLUG: elimination																														
DivMask: extend interface?																														
Implement "elim" in CoCoALib																														
Cleanup MinPoly code																														
implicit, ImplicitHypersurface: (...)																														
LinSolve for matrices over FFp																														
strict enum types: C++11 extension																														
New function: cardinality of finite (...)																														
MachineInt: change semantics?																														
New function: multiplicity and (...)																														
Improve saturate																														
Slug: Polynomial ring constructor (...)																														
Documentation: translation table																														
Fns with "OUT" args: should they (...)																														
Revive code for SelfSaturating (...)																														

Canonical homomorphism for (some) (...)
 ideal: does const ourGetPtr really (...)
 Clean up SparsePolyOps-MonomialIdeals
 IsZeroDet: new fn
 syz, SyzOfGens: which shifts for (...)
 New function: SubmoduleOfGBasis
 New function: GBasisByHomog
 Move to C++14 (skipping C++11)
 subresultant
 exgcd over integers (ZZ)
 Modify function myElim so that (...)
 Oddly slow LEX GBasis computation
 RadicalZeroDim with extra parameter (...)
 Start using C++14 "move" capability
 Documentation for SparsePolyOps?
 Use C++14 constexpr
 Better test for univariate-ness (...)
 Doc for module term orderings
 Return type with const
 Make saturate available in CoCoALib
 gcd does not recognize univariate (...)
 Add file SparsePolyOps-vector.C
 Microsoft: cannot compile with (...)
 txt2tags: problem with filenames (...)
 Compilation on Windows: problems (...)
 Release CoCoALib 0.99850
 Symlink directory for external (...)
 Dangling references to temporaries
 MinGens gives non minimal gens (...)
 Configuration hiccups on Mac M1
 IdealOfPoints: allow duplicate (...)
 deg(f) is slow if f is long
 MakeTermOrdMat: improve error msg
 Finalize design for ideals in CoCoALib

<p>Evaluate polynomial function/class radical for ideals in SparsePolyRing: (...)</p> <p>CoCoALib - CoCoALib-0.99880</p> <p>Printing polynomials - spaces between (...)</p> <p>Play with GIT</p> <p>LongRange: in which file should (...)</p> <p>Impl small non-prime finite fields (...)</p> <p>DistrMPolyClean does not use MemPool (...)</p> <p>Update normaliz interface?</p> <p>Insert calls to CheckForInterrupt</p> <p>Better errors: give supplementary (...)</p> <p>Test whether a symbol is in a ring</p> <p>Redesign ideals</p> <p>FlagManager for bool/bool3 flags</p> <p>MachineInt or long for args which (...)</p> <p>Separate configure scripts for (...)</p> <p>IsRadical for ideal?</p> <p>GFan: require version newer than (...)</p> <p>SLUG: factorization of x^{9999}</p> <p>Separate install script for CoCoALib?</p> <p>interval arithmetic</p> <p>Naming convention mistakes</p> <p>32-bit or 64-bit preprocessor macro?</p> <p>Frobby version number</p> <p>factor SEGV -- too large characteristic</p> <p>C++14: Use type auto where appropriate</p> <p>New function: MinPoly for pseudo-zero-dimensional (...)</p> <p>Ideals with trivial GBasis</p> <p>Tidy CoCoALib test directory</p> <p>Determinant & Inverse of matrix (...)</p> <p>Factor of multivariate sometimes (...)</p> <p>PrimaryDecomposition: a interesting/pathological (...)</p> <p>C++14: use the new for loop syntax (...)</p> <p>ideal ctor where given gens are (...)</p>	
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TmpLDP uses srand and time
 RingID counter increased inside (...)
 Type ideal for ZZ[x[1..n]]
 GlobalManager: create SignalWatcher (...)
 Make class RingElemVector?
 Remove flag IhaveGBasisValue?
 DenseMatrix: use template impl (...)
 HNF: Hermite Normal Form
 What is the difference between (...)
 mul(MAT,MAT,MAT)
 Simple syntax for making a quotient (...)
 Doc for normaliz fns
 Unexpectedly slow example with (...)
 gfan does not "deinitialize"
 Default ctor for rings
 matrix.H and MatrixView.H
 ker_H needs care
 Use noexcept
 DynamicBitset missing arg checks
 cmp for machine integers
 Detect updated versions of external (...)
 Clean time.C
 Documentation for PrimaryDecomposition
 Unused variables, params, data (...)
 NR for polys with coeffs in PID
 interreduce: make monic if over (...)
 rref slower than expected (maybe) (...)
 Suppress zero ideal generators? (...)
 Improve CertifyNotPower
 geobucket: documentation
 GBasis over ZZ: port to CoCoALib
 Generalize prim
 Review File subtree hierarchy
 Build also dynamic/shared library (...)

<p>Review examples</p> <p>release-source script: use shell (...)</p> <p>Unsigned long for indexes (& sizes?)</p> <p>IsIrred in ZZ[x,y]</p> <p>RingBase::mySwap needed?</p> <p>Shell scripts: Shebang line, etc</p> <p>Threadsaafety, multithreading: optional (...)</p> <p>ProgressReporter: prepare for new (...)</p> <p>Development releases?</p> <p>ProductBigInt (also ProductBigRat???)</p> <p>FactorINT has got worse</p> <p>Cruft in ExtLibs-Normaliz.C</p> <p>ApplySPRCodomain: relax power/exponent (...)</p> <p>FactorINT: funny order</p> <p>Clean TmpGOperations, and remove (...)</p> <p>Homogenization of an ideal with (...)</p> <p>Suggestion about Graded polynomial (...)</p> <p>MinGens could be faster</p> <p>Implement Truncated GBases for (...)</p> <p>Implement GBMill (aka Groebner (...)</p> <p>July 2023</p> <p>gcd(f,f) is slow</p> <p>Verbosity messages: avoid printing (...)</p> <p>VerificationLevel: just 3? Low, (...)</p> <p>Homogenizer</p> <p>Make CoCoALib test file for radical</p> <p>Iterator design: compatible with (...)</p> <p>New MatrixView/function "FirstRows/FirstCols"?</p> <p>CoCoALib - CoCoALib-0.99900</p> <p>Redmine Administration</p> <p>Design new errors using inheritance</p> <p>New function: IdealWithIncrementalGBasis(l, (...)</p> <p>New class: exterior algebra</p> <p>Create PolyOps-RingElem?</p>	
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<p> HilbertDriven Buchberger Algorithm Filling matrix row/col from a vector GFan: port CoCoA_5 functions into (...) Adjoin indets to a poly ring Get indexed indets from a polyring Idea for for loops Extended rationals: PlusInfinity (...) submat of a submat SLUG: Printing PPs with many indets Convenient RingHom pseudo-ctors Factorization in $K(a,b)[x,y]$ ElimMat is slow Sparse matrix (SparseMat) Coding guidelines Signal handler not portable? Intersection of Ideals: has GBasis? Implement monic0(f) for the case (...) Add LM to cocoalib ? MachineInt: chase through ULL (...) Documentation: a good model to (...) swap for new classes Random and threadsafe? Suggestion: Add "JumpTo" function (...) Use C++ attributes Code & doc structure: one-big-file (...) Add flag IhaveHomogGensValue (...) Add function IsHomog3(l)? Add new function for IsInRadical (...) CoCoALib - CoCoALib-1.0 Sort out RingElem, RefRingElem, (...) List of all functions in CoCoALib printing polynomials keywords in documentation Cleanup header for ring classes (...) </p>	
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Error Codes

Mod fn for computing remainder

automatic creation of all function (...)

Introduce PartialHom

Ideals of polynomials

LT over QQ: surprisingly slow

IdealOfPoints with generic coeffs

New datastructures directory

Convert DUPFF code to C++

Better GCD

Design problem in ideals

Convenience ring ctors and homs

Buchberger-Moeller (parent task)

 Buchberger-Moeller: fast modular (...)

 Buchberger-Moeller: impl via (...)

Buchberger-Moeller: input conversions

Makefile dependencies

RingOf rather than owner? (and (...)

Iterated CanonicalHom

GCD normalization (e.g. monic)

Convert old "task table" into redmine

IsStdGraded: add for PPOrdering, (...)

PPWithMask needs checking

Example for change of coordinates (...)

HilbertBasis from Normaliz: full-lattice (...)

Generator for random ring elements

Documentation for QBGenerator needs (...)

No test for QBGenerator

Approx QIR

Transcribe C4 code for GCD in QQ[x]

Multivariate lifting

Move the various <matrix>::mySetEntry (...)

Forward declarations

Eliminate class RefPPMonoidElem?

<p>Store unique copy of FF(p) in GlobalManager</p> <p>Global setting: to use IsProbPrime (...)</p> <p>PrimeField -- new fn?</p> <p>Modules design: brainstorming</p> <p>Compilation on M\$Windows: Visual (...)</p> <p>FreeModule: unique copy?</p> <p>Error: ERR::NotNonZero instead (...)</p> <p>Add doc for ApproxPts2</p> <p>submodule constructor different (...)</p> <p>C++ nasty surprises</p> <p>Why is DMPI slower than DMPClean?</p> <p>Module homs</p> <p>Missing documentation and tests (...)</p> <p>CoCoAServer: what future, what (...)</p> <p>Resolution/morse: integrate Mario (...)</p> <p>add resolution data type</p> <p>implement algorithm(s) for resolutions</p> <p>PPMonoidElemAlias: redesign PPMonoidElem (...)</p> <p>add myHilbertSeries member field (...)</p> <p>add myJBMill member field to ideal</p> <p>NewFreeModule of dimension 0</p> <p>Minimal syzygies (optimized implementation)</p> <p>Allow user to give a name to a (...)</p> <p>Error names and error messages (...)</p> <p>Semantics of IsPrintedWithMinus</p> <p>Improve UPoly eval at BigRat for (...)</p> <p>MemPool: order free blocks?</p> <p>Polynomial multiplication (product (...)</p> <p>Port RealRoots to C++</p> <p>Eigenvectors</p> <p>Which sets of generators in an (...)</p> <p>LinearSimplify: port to CoCoALib</p> <p>Unique copies of rings -- smart (...)</p> <p>Clang: automatic bug finding</p>	
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<p>Documentation: write doc for RingDenseUPolyClean</p> <p>Quick/correct flag for bool3 fns</p> <p>Fn to "flatten" muliple polynomial (...)</p> <p>Make squarefreefactor work in multiple (...)</p> <p>FloatStr uses too much memory</p> <p>Functions to clean up a factorization</p> <p>elim using RingTwinFloat triggers (...)</p> <p>add myResolution member field (...)</p> <p>Reconsider overloaded virtual mem (...)</p> <p>Subrings</p> <p>Temporary file for experimentation</p> <p>FloatApprox for TwinFloat values?</p> <p>Documentation for ReductionCog</p> <p>Allow use of RingElem instead of (...)</p> <p>Split SparsePolyRing.H into two (...)</p> <p>Investigate using cmake for configuration</p> <p>Error codes: use same code for (...)</p> <p>New function for printing with (...)</p> <p>Implement gin (generic initial (...)</p> <p>Problem with template instantiation (...)</p> <p>configure: check all libraries (...)</p> <p>Redesign CRTMill</p> <p>Wikipedia</p> <p>Gaussian integer and rationals (...)</p> <p>Complex twin-floats</p> <p>Shadow CoCoA namespace to help (...)</p> <p>What is test-Dynamic1.C</p> <p>Buchberger-Moeller: add option (...)</p> <p>Unique copies of free modules?</p> <p>Optimized algorithms for implicitization (...)</p> <p>Laurent polynomials</p> <p>Integrate Janet/Pommaret basis (...)</p> <p>factor: multivariate + finite characteristic</p> <p>Matrix determinant over multivariate (...)</p>	
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Credits to CoCoALib contributors
 Accumulator (like a geobucket)
 MemPool: make it easier to get (...)
 PPMonoid: add fn to check for overflow (...)
 Use DivMask inside QBGenerator
 myAddMul in poly rings
 PolyAlgebraHom (PolyRingHom) evaluate (...)
 Fault tolerant rational reconstruction: (...)
 Remove cruft from test files
 Add more operations between modules (...)
 Example database: Slow ideal equality (...)
 Noncommutative algebra "of solvable (...)
 Betti numbers, betti diagram
 Extend homomorphism to polynomial (...)
 Addition of sparse (multivariate) (...)
 View PP exponent vector (and order (...)
 Problem with GBasis in tower of (...)
 Investigate using Boost.build instead (...)
 configure: have option to say to (...)
 GlobalManager: initialization compatible (...)
 ExternalLib-CDD: (needed by GFan)
 CoCoALib cone
 PPMonoid with 1 extra "exponent"?
 CRTMill::myAddInfo accept modulus (...)
 Makefile: problem not seeing when (...)
 GroebnerFan/ExternalLib-GFan: improve (...)
 threadsafety: Scott Meyers's advice (...)
 finite fields: global register (...)
 Remove refcounts from RingElem?
 No doc for DistrMPolyInIFpPP
 Clean code for DistrMPolyClean
 SmallFpImpl: make it faster
 vector of "indets" in each PPMonoid?
 PPOrdering: use it to compute WDeg?

Alg Extn by non-zero dim ideal
 FastCmp for degree -- useful?
 PPMonoid pseudo-ctor without explicit (...)
 GenRepr in CoCoALib?
 F5 with 3 args?
 Sparse matrices
 MachineInt: function for checking (...)
 Generalize grading matrix
 UIBC: need include file in RingWeyl.C
 Make Mario's new code threadsafe
 factor is very slow on some simple (...)
 Differential algebra
 SparsePolyIter: make more compatible (...)
 GINV: alex basis
 NewPolyRing: tidy up the many different (...)
 PPMonoidSparse: comparisons are (...)
 IsIrred: correct design?
 SmallFpImpl: different repr for (...)
 bool3: add some logical operations?
 factor: too slow on largish multivariate (...)
 Impl faster multiplication for (...)
 DistrMPolyInIPP::myPushFront and (...)
 IsIrred3: fast 3-way irred test (...)
 myIsEqual, myCmp: direct comparisons (...)
 SmallFpDouble: which impl of InvMod (...)
 External libraries: keep copy of (...)
 Read input from SymbolicData database
 New function: quorem for univariate (...)
 Hilbert Driven GBasis
 Design GBMill
 Fn to read symbol range (SymbolRange)
 Documentation: check layout of (...)
 Printing TwinFloat as (rational) (...)
 LinDepMill: Mill for linear dependencies

Which names to use? Intersection (...)
 Slow NF example
 Weights in ElimMat?
 ex-PolyIterator
 QIR/RealRootRefine: improve behaviour (...)
 GCD: add special case if args are (...)
 Poly ring homomorphism to change (...)
 C++11: Mario's Hilbert scheme code
 GlobalManager: name of object in (...)
 RowMat, ColMat with arg an empty (...)
 New "LF" function which is based (...)
 JanetBasis gives error indet index (...)
 GroebnerFan: slow examples
 Printing ring for ideals (or just (...)
 GroebnerFan: ERROR: Matrix must (...)
 Slug: MakeTermOrd (rk calls in (...)
 invalid pointer in "free"
 WEB SITE: HTML is not clean!
 Ctors for exceptions/errors
 Pseudo-zero-dim ideals
 Remove READLINE from CoCoALib
 Better printing of negative coeffs
 SqFreeFactor: should it work over (...)
 Organize better the documentation (...)
 mySquare and myPowerSmallExp
 New fn: transform ideal with ring (...)
 Printing for RingElem
 Clean up revised RatReconstructByContFrac (...)
 Upper bound for value of poly in (...)
 Matrix rank is slow (over QQ)
 Non-standard DegRevLex (NonStdDegRevLex, (...)
 New function: Threadsafe RandomLinearForm (...)
 exgcd; solve Bezout equation
 Make a poly ring QQ[x,y,z] also (...)

<p> Ideal equality Ideal Ops: sort-cuts for trivial (...) Port old "clever" code for matrix (...) Improve RealRoots: compute sqfr (...) Improve RootBound All PPs of given wdeg gcd: low degree but big coeffs (...) RandomUnimodularMat is slow with (...) French students' example with GFan Create two separate radical fns (...) DynamicBitset::lamAll1s Unified Gaussian reduction impl Benchmarks? C++17: notes about updating slimgb: Brickenstein, singular CoCoALib - removed/duplicates CoCoALib: ideas for student projects </p>	
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