

CoCoALib

	2018-7				2018-8				2018-9				2018-10				2018-11				2018-12							
	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52		
CoCoA																												
CoCoALib	<div><div></div><div>CoCoALib</div></div>																											
MinPolyQuot not documented																												
New function IsInSymbols																												
CoCoALib releases on redmine																												
CoCoALib - CoCoALib-0.99850																												
Release CoCoALib 0.99850																												
CoCoALib - CoCoALib-0.99880																												
Matrix equation solving; linear (...)																												
Improve threadsafety																												
Matrix equation solving: LinKer																												
Printing polynomials - spaces between (...)																												
Play with GIT																												
Error: ERR::NotNonZero instead (...)																												
Elim(vector<long>) as PPOrderingCtor																												
Syzygy for modules: non-homogeneous (...)																												
Error codes: use same code for (...)																												
LongRange: in which file should (...)																												
Impl small non-prime finite fields (...)																												
DistrMPolyClean does not use MemPool (...)																												
MatrixOrderingMod32749Impl: test (...)																												
Update normaliz interface?																												
Better errors: give supplementary (...)																												
SLUG: elimination																												
Test whether a symbol is in a ring																												
DivMask: extend interface?																												
Implement "elim" in CoCoALib																												
Cleanup MinPoly code																												

<p>implicit, ImplicitHypersurface: (...)</p> <p>Redesign ideals</p> <p>LinSolve for matrices over FFp</p> <p>strict enum types: C++11 extension</p> <p>New function: cardinality of finite (...)</p> <p>FlagManager for bool/bool3 flags</p> <p>MachineInt or long for args which (...)</p> <p>Separate configure scripts for (...)</p> <p>MachineInt: change semantics?</p> <p>IsRadical for ideal?</p> <p>New function: multiplicity and (...)</p> <p>Improve saturate</p> <p>Slug: Polynomial ring constructor (...)</p> <p>Revive code for SelfSaturating (...)</p> <p>SLUG: factorization of x^{9999}</p> <p>Separate install script for CoCoALib?</p> <p>Canonical homomorphism for (some) (...)</p> <p>interval arithmetic</p> <p>Clean up SparsePolyOps-MonomialIdeals</p> <p>Naming convention mistakes</p> <p>IsZeroDet: new fn</p> <p>New function: SubmoduleOfGBasis</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>exgcd over integers (ZZ)</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 $\mathbb{Z}\mathbb{Z}[x[1..n]]$
 GlobalManager: create SignalWatcher (...)
 Oddly slow GBasis computation (slow (...)
 Make class RingElemVector?
 RadicalZeroDim with extra parameter (...)
 Remove flag IhaveGBasisValue?
 DenseMatrix: use template impl (...)
 HNF: Hermite Normal Form
 Start using C++14 "move" capability
 What is the difference between (...)
 mul(MAT,MAT,MAT)
 Simple syntax for making a quotient (...)
 Doc for normaliz fns
 Documentation for SparsePolyOps?
 Better test for univariate-ness (...)
 Unexpectedly slow example with (...)
 gfan does not "deinitialize"
 Default ctor for rings
 Doc for module term orderings
 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) (...)
 Improve CertifyNotPower

txt2tags: problem with filenames (...)
 geobucket: documentation
 Compilation on Windows: problems (...)
 GBasis over ZZ: port to CoCoALib
 Generalize prim
 Review File subtree hierarchy
 Build also dynamic/shared library (...)
 Review examples
 release-source script: use shell (...)
 Unsigned long for indexes (& sizes?)
 IsIrred in ZZ[x,y]
 RingBase::mySwap needed?
 Shell scripts: Shebang line, etc
 Threadsafety, multithreading: optional (...)
 Symlink directory for external (...)
 ProgressReporter: prepare for new (...)
 Development releases?
 ProductBigInt (also ProductBigRat???)
 DivAlg in CoCoALib
 Cruft in ExtLibs-Normaliz.C
 ApplySPRCodomain: relax power/exponent (...)
 FactorINT: funny order
 Clean TmpGOperations, and remove (...)
 Homogenization of an ideal with (...)
 Suggestion about Graded polynomial (...)
 MinGens gives non minimal gens (...)
 MinGens could be faster
 Implement Truncated GBases for (...)
 Implement GBMill (aka Groebner (...)
 July 2023
 IdealOfPoints: allow duplicate (...)
 deg(f) is slow if f is long
 gcd(f,f) is slow
 Verbosity messages: avoid printing (...)

<p> VerificationLevel: just 3? Low, (...) Homogenizer Make CoCoALib test file for radical Iterator design: compatible with (...) CpuTimeOut: arg of type ErrorContext? Use ErrorContext instead of string (...) myFinalizeGBasis ("Final clean (...) Computing in sub polyring Conversion from SmallPrime to UNSIGNED (...) BuildInfo Error codes: "Not..." for "blah (...) New constructor for PolyRing with (...) Make ex-syz.C Check include guards Documentation: indexXX.html should (...) CoCoALib - CoCoALib-0.99900 Redmine Administration Design new errors using inheritance Which names to use? Intersection/saturation (...) New function: IdealWithIncrementalGBasis(l, (...) Documentation: translation table New class: exterior algebra ideal: does const ourGetPtr really (...) Create PolyOps-RingElem? Move to C++14 (skipping C++11) subresultant 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 </p>	
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<p> 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 Finalize design for ideals in CoCoALib Code & doc structure: one-big-file (...) Add flag IhaveHomogGensValue (...) Add function IsHomog3(l)? Add new function for IsInRadical (...) Add a function CleanupGens making (...) Tidying ideal generators (for non-polynomial (...)) Improve trivial operations with (...) Use long long (at least sometimes)? Release CoCoALib 0.99900 Some tests have become slower Ensure tests do not need too much (...) 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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<p> Error Codes 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? Store unique copy of FF(p) in GlobalManager </p>	
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<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>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> <p>Documentation: write doc for RingDenseUPolyClean</p> <p>Quick/correct flag for bool3 fns</p>	
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Fn to "flatten" multiple polynomial (...)
 Make squarefreefactor work in multiple (...)
 FloatStr uses too much memory
 Functions to clean up a factorization
 elim using RingTwinFloat triggers (...)
 add myResolution member field (...)
 Reconsider overloaded virtual mem (...)
 Subrings
 Temporary file for experimentation
 FloatApprox for TwinFloat values?
 Documentation for ReductionCog
 Allow use of RingElem instead of (...)
 Split SparsePolyRing.H into two (...)
 Investigate using cmake for configuration
 New function for printing with (...)
 Implement gin (generic initial (...)
 Problem with template instantiation (...)
 configure: check all libraries (...)
 Redesign CRTMill
 Wikipedia
 Gaussian integer and rationals (...)
 Complex twin-floats
 Shadow CoCoA namespace to help (...)
 What is test-Dynamic1.C
 Buchberger-Moeller: add option (...)
 Unique copies of free modules?
 Optimized algorithms for implicitization (...)
 Laurent polynomials
 Integrate Janet/Pommaret basis (...)
 factor: multivariate + finite characteristic
 Matrix determinant over multivariate (...)
 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
 Slow NF example
 Weights in ElimMat?
 ex-PolyIterator

<p>QIR/RealRootRefine: improve behaviour (...)</p> <p>GFan: require version newer than (...)</p> <p>GCD: add special case if args are (...)</p> <p>Poly ring homomorphism to change (...)</p> <p>C++11: Mario's Hilbert scheme code</p> <p>GlobalManager: name of object in (...)</p> <p>RowMat, ColMat with arg an empty (...)</p> <p>New "LF" function which is based (...)</p> <p>JanetBasis gives error indet index (...)</p> <p>GroebnerFan: slow examples</p> <p>Printing ring for ideals (or just (...)</p> <p>GroebnerFan: ERROR: Matrix must (...)</p> <p>Slug: MakeTermOrd (rk calls in (...)</p> <p>invalid pointer in "free"</p> <p>WEB SITE: HTML is not clean!</p> <p>Ctors for exceptions/errors</p> <p>Pseudo-zero-dim ideals</p> <p>Better printing of negative coeffs</p> <p>SqFreeFactor: should it work over (...)</p> <p>Organize better the documentation (...)</p> <p>mySquare and myPowerSmallExp</p> <p>New fn: transform ideal with ring (...)</p> <p>Printing for RingElem</p> <p>Clean up revised RatReconstructByContFrac (...)</p> <p>Upper bound for value of poly in (...)</p> <p>Matrix rank is slow (over QQ)</p> <p>Non-standard DegRevLex (NonStdDegRevLex, (...)</p> <p>New function: Threadsafe RandomLinearForm (...)</p> <p>exgcd; solve Bezout equation</p> <p>Make a poly ring QQ[x,y,z] also (...)</p> <p>Ideal equality</p> <p>Ideal Ops: sort-cuts for trivial (...)</p> <p>Port old "clever" code for matrix (...)</p> <p>Improve RealRoots: compute sqfr (...)</p>	
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<p>Improve RootBound</p> <p>All PPs of given wdeg</p> <p>gcd: low degree but big coeffs (...)</p> <p>RandomUnimodularMat is slow with (...)</p> <p>French students' example with GFan</p> <p>Create two separate radical fns (...)</p> <p>DynamicBitset::lamAll1s</p> <p>Unified Gaussian reduction impl</p> <p>Benchmarks?</p> <p>C++17: notes about updating</p> <p>slimgb: Brickenstein, singular</p> <p>Clean out OLD CODE?</p> <p>CoCoALib - removed/duplicates</p> <p>CoCoALib: ideas for student projects</p>	
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